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Power Show Offers New and Improved Devices

Many Unique Machines and Instruments Shown at Eleventh National Exhibition of Power and Mechanical Engineering, Held In Grand Central Palace This Week—At Formal Opening Chairman Moulton Declares Plants Which Generate, Distribute or Use Power Are Now Feeling More Encouraged to Make Improvements and Reconstruct

With a diversified array of exhibits, many of which are quite new and phenomenal, the Eleventh National Exhibition of Power and Mechanical Engineering opened on Monday last in the Grand Central Palace, New York, for a six day run. From a machine of so-called perpetual motion to a machine for washing small children, and from delicate photo-electric cell apparatus to heavy, ponderous machinery, the display covers a wide range. The Power Show is held coincident with the annual meeting of the American Society of Mechanical Engineers, which is holding its sessions in the Engineering Societies Building.

I. E. Moulton Opens Show

In his address at the formal opening of the show, I. E. Moulton, chairman of the advisory committee, remarked:

"As we all know, the National Power Show serves the manufacturers of equipment, instruments of precision and products which are used throughout the world in plants which generate, distribute or use power.

"These plants are now feeling more encouraged to making improvements, renewals and reconstruction than they have for a long time. This feeling should be reflected here this week to those firms who have had the courage to go out after business, and we hope that those who are not here will realize that they have neglected their greatest biennial opportunity to continue their contacts with customers and potential customers.

"In this 1934 exposition we have incorporated several new ideas with the thought of making the Power Show more interesting to our visitors and increasingly effective for our exhibitors. As time goes on, we hope to make the Power Show an even more important selling tool of equipment manufacturers, endeavoring to adapt it to the particular needs of industry every two years. We appreciate and welcome any suggestion from exhibitors that will help to make the National Power Show a lasting service to industry."

Limitation of space prevents individual mention of all the various exhibits, but the following is a record of some of the displays which are of particular interest to the paper industry:

The Bristol Co.

Recorders that chart every pressure and other fluctuation, the time it occurred and its duration, are shown at the booth of the Bristol Company, of Waterbury, Conn. Special features of this attractive exhibit are Bristol's new Metameter for telemetering distribution steam pressures over long distances and Bristol's electric indicating thermometer flow meter for precision measurement of steam, oil, water, gas and air.

Carborundum Co.

Visitors to the show are attracted to the large booth of the Carborundum Company, of Perth Amboy, N. J., by a realistic animated replica of Niagara Falls. The various refractory products of the Carborundum Company are attractively displayed, including Carbofrax Brick and Tile, Carbofrax Muffles, Carbofrax and Firefrax Cements, Carbofrax Hearths, Carborundum Brand Firesand, Carbofrax Pyrometer Protection Tubes, Carbofrax and Aloxite Brand Saggers, Setter Slabs, Tile Setters and other Kiln Furniture, Aloxite Brand Brick and Tile, Aloxite Brand Muffles, Aloxite Brand Cements and Alfrax Cements.

The Crane Co.

Fittings, Flanges and Valves for welding are displayed by the Crane Company, of 836 South Michigan Avenue, Chicago. Clamp Gate Valves are also featured at this exhibit. They are compact in design and moderately priced. Crane Clamp Gate Valves come in a complete line of small sizes and for small valve requirements throughout a plant can be used everywhere. They are available in screwed or flanged ends, brass mounted, for general industrial uses, or all iron for resistance to corrosion.

General Electric Co.

Among the unique exhibits at the show is a talking beam of light shown in New York for the first time. It originated in the General Electric "House of Magic" at Schenectady, N. Y., and ingeniously transmits sound over a light beam at the show a distance of 46 feet. In experiments, however, the beam has operated at a distance of 46 miles from mountain top to mountain top. In order to

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Canadian Press Supports Newsprint Price Rise

Several Prominent Newspapers Openly Endorse Plan, While Majority Refrain From Editorial Comment—Only One Publisher Attacks Movement—Newsprint Exports During October Higher Than In September and Far Ahead of Corresponding Period Last Year

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Quebec, December 3, 1934—This has been a quiet week in the newsprint industry after all the excitement and controversy attending the question of settling the contract price for newsprint for the year 1935. Practically all the producers who had not made commitments have now lined themselves up behind the International Paper Company's stand by announcing an increased $2.50 per ton for the first six months of the year and a further increase of $2.50 for the second half of the year. As far as the newspapers in Canada are concerned, their attitude generally seems to be one of acquiescence in the new price level. Some of the more prominent newspapers have openly supported the increase, but the majority have refrained from editorial comment.

Hamilton Newspaper Opposes Price Increase

The only paper which has actively attacked the plan for a price increase is the *Hamilton Spectator*, which in the course of a long editorial on the subject says:

"United States, as well as Canadian publishers, are farsighted enough to want the source of their principal raw material and a great Canadian industry preserved and developed along sound lines. It is not sound, however, when the available supply of a commodity exceeds the demand by 50 per cent. or more to attempt to foist upon the consumers a government-fixed price predicated upon the cost of keeping a greatly over-expanded industry running on pro-rated production for political and uneconomic financial reasons, and to ignore the fact that if the most efficient mills with a low burden of overhead were permitted to operate at full capacity their financial position, under present circumstances of revenue and production costs, would compare favorably with that of most publishers. Premier Taschereau has reminded us of the days following the war, when publishers had to pay $140 per ton for newsprint without apparently suffering. The publishers might with equal justice remind Mr. Taschereau of years preceding the war, when the highly prosperous Quebec newsprint industry sold newsprint at $40 per ton delivered in the pressrooms. If there is a way out for the newsprint men, it is not along the present path of '*force majeure*' instituted by politicians or bankers, but along the lines of sound business practice agreed upon between newsprint manufacturers who know their business and publishers who know theirs. It seems certain that if the present policy is pursued the newsprint industry of those Canadian provinces which are a party to it will ultimately suffer grave injury."

With reference to the arguments thus set forth, it is only fair to state that there is another side to the question. The main argument is that there would be no such pressing need for a price revision if production were concentrated and the most efficient mills run at full capacity. This would mean wholesale bankruptcies and not only a wholesale scrapping of plants, but a wholesale abandonment of entire communities. There are many towns dotted over the Provinces of Quebec and Ontario wholly dependent on the newsprint industry. Closing up the mills in many of these by the drastic policy suggested would have grave economic and political consequences and there are many who believe that from the publishers' point of view the situation would be worse instead of better.

Export Position Improves

Figures just released by the Dominion Bureau of Statistics show that the value of exports of newsprint from Canada in October was higher than the previous month and considerably higher than in the same month last year. The total for October was $6,958,945 as compared to $6,569,041 in September and $6,285,008 in October, 1933.

The value last month did not keep pace with the increased volume of exports on the year's comparison. Tonnage exported in October was 204,904 tons as compared to 171,947 tons in October, 1933, or an increase in volume of 19.1 per cent. The value, however, rose only 10.7 per cent.

Out of the total value of $6,958,945 for last month's newsprint exports the shipments to the United States amounted to $5,727,969.

For the seven months of the Dominion's fiscal year—that is, April to October, inclusive—the value of exports of newsprint from Canada was $46,942,590 as compared to $42,064,446 in the corresponding period of last year. Comparative newsprint export figures follow:

	Volume (Tons)	Value
October, 1934	204,904	$6,958,945
September, 1934	190,794	6,569,041
October, 1933	171,947	6,285,008
7 mos., 1934	1,373,752	46,942,590
7 mos., 1933	1,116,950	42,064,446

Canada to Have New Bank Bills

Paper and engraving firms here are now busy on the preparation of an entire new series of bank notes, to be issued by the newly-formed Bank of Canada, a semi-government institution, which is to act as a bankers' bank. This institution will not engage in ordinary commercial banking, but will act as a central bank, taking over the functions hitherto exercised by the government, and gradually allocating to itself the issue of bank notes, with the view of restricting the issue of bank notes by the commercial banks to 25 per cent of their paid-up capital. The new notes will be much smaller than the present ones. They will be six inches long by two and seven-eighths inches wide, instead of the present size of seven and one-eighth by three and three-eighths. They will be a little wider and a fraction shorter than the present United States currency. All denominations are being printed in English and French—separate notes for each language, no single note to be bi-lingual. The notes will bear portraits. The one-dollar note will feature King George, the two-dollar, Queen Mary; the five-dollar, the Prince of Wales; the ten-dollar, Princess Mary; the twenty-dollar, Princess Elizabeth; the fifty-dollar, the Duke of York; the hundred-dollar, the Duke of Gloucester; the $500, Sir John A. Macdonald (first premier of Canada), and the $1,000, the late Sir Wilfrid Laurier, a former premier.

Kimberly-Clark to Install New Paper Machine

New Modern Unit Will Replace One of Two Present Machines At Lakeview Mill, Neenah, Wis. —New Machine Will Be Specially Adapted to Manufacture Crepe Wadding for Various Cellucotton Products Made by Subsidiary Converting Plants

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 3, 1934—Installation of a new paper machine at the Lakeview mill of the Kimberly-Clark Corporation at Neenah, Wis., will take place within the next few months, according to announcement made by the company last week. One of the two present machines at this mill will be dismantled and replaced by a more modern one, and operations will be curtailed to the extent of the one piece of equipment until the change has been made.

The new machine will be specially adapted to the manufacture of crepe wadding for the various cellucotton sanitary products made by subsidiary converting plants. A greater capacity will be made possible using the most up-to-date and efficient production methods. The Lakeview mill was purchased several years ago from the Lakeview Paper Company at the time the company decided to discontinue paper making at its Atlas mill at Appleton, Wis., where its wall paper stock is now being printed.

Arrangements under which employment schedules will be conducted during the interruption were explained to the Lakeview mill council by company officials at a recent meeting. Employees whose jobs are affected will have first consideration, it was stated.

Selmer Construction Company of Green Bay, Wis., has been awarded the contract for construction of two additions to the Fort Howard Paper Company's mill at Green Bay. The work is already under way. These two units will be one story each, one 60 by 120 feet, and the other 50 by 75 feet. They will provide additional storage and operating space. The estimated cost of these improvements is more than $35,000, with equipment.

Directors Income Tax Claims

Each member of the board of directors of the Kimberly-Clark Corporation faces the prospect of paying a large amount of additional income tax, the aggregate of which is between $900,000 and $1,000,000, as the result of litigation started by the government at Washington. The outcome of the first test case leads to this assumption. The United States board of tax appeals has held that Charles H. Sage, of Neenah, Wis., one of the directors, must pay an additional income tax of about $8,300 because he received 2,283 shares of stock of the Kotex Company when that corporation was formed.

All of the Kimberly-Clark directors, like Sage, have contested the government's tax claims before the board of tax appeals. Sage is expected to appeal his case to the federal courts in order to head off a precedent which would cost his associates a large sum. His holdings are said to be relatively small in comparison to those of other officials.

In 1927, the Kimberly-Clark Corporation decided to divorce the Kotex business from the parent company, and agreed that the stock in the new Kotex Company was to be distributed to Kimberly-Clark directors as a dividend. The original issue was 260,000 shares of stock, all of which went to the directors.

A slip in the legal procedure evidently laid the directors open to the government's claims. Dividends are taxable under the income tax law, the government holds, but stock distributed in the course of corporate reorganizations, such as the Kotex deal involves, are not. It is reported that profits of several millions have been made out of the sale of cleansing tissues, sanitary napkins, and other cellucotton products, but the full amount of the income was not disclosed in the Sage proceedings.

Dr. Kress Discusses Pulp Problems

"Development of wood pulps suitable for the chemical conversion of cellulose to products like artificial silk, cellophane, and lacquers is one of the fundamental problems facing the pulp and paper industry," declares Dr. Otto Kress, technical director of the Institute of Paper Chemistry, Appleton, Wis. He made this statement in an address last week before the Chicago Section of the American Chemical Society at Chicago.

The industry, the sixth largest in the United States, is studying the utilization of wood species not being employed at the present, he said. Investigation of methods for increasing the yield and quality of pulp and paper must also be undertaken, as well as to overcome stream pollution.

"The paper consumption of any country is a direct measure of its state of civilization," Dr. Kress continued. "In the United States, which has the highest per capita consumption of paper, the yearly figures vary from 175 to 225 pounds of paper products per person. Through the development of the modern paper machine, and the introduction of the various processes of wood pulping, cheap paper has been made available to the world."

Dr. Kress explained the purposes and accomplishments of the Institute of Paper Chemistry, made a survey of the growth of paper making, and described the different processes of pulping.

News of the Industry

William R. Kellett, of Menasha, Wis., has been granted a patent for his invention of an improved type of paper machine. It provides for the maintenance of the moisture content of the web and felt pick-up from pick-up to transfer points. Mr. Kellett made application for the patent in 1932, basing it on ten points of originality and improvement. The Paper Patents Company, Neenah, Wis., has acquired the commercial rights.

The Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., sent 8-pound boxes of cranberries to its 650 stockholders as a Thanksgiving gift. They were obtained from the Biron Cranberry Company, and the shipments totalled 5,200 pounds. The area adjacent to Wisconsin Rapids is one of the largest cranberry producing centers in the entire country.

E. H. Charlton, vice president of the International Paper Company, New York, paid a visit last week to the Institute of Paper Chemistry at Appleton, Wis. Mr. Charlton was recently elected to the board of trustees of the Institute to succeed the late L. M. Alexander, president of the Nekoosa-Edwards Paper Company, Port Edwards, Wis.

Chicago Paper Market Displays Upward Trend

Demand for Various Standard Grades of Fine Paper Gradually Increasing—Bond and Ledger Papers Moving In Good Volume—Kraft Paper Section In Stronger Position—Newsprint Paper Situation Greatly Improved—Ground Wood Papers Slightly More Active

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 3, 1934—An upward surge in retail business, reported by many leading retail store executives in Chicago, has had a decidedly beneficial effect on the paper business, particularly pleasing to jobbers directly serving the retail accounts. Manufacturers' representatives selling to jobbers who serve the retail outlets with other lines have also experienced an upward trend which bears out the hope that the Fall upturn really got under way in November.

Encouragement is registered from the majority of the paper lines represented in this market. Fine papers reported an increase in demand which, with the recent improvement in the price situation, is going to help materially. Bonds and ledgers have felt the betterment, while the direct mail exhibits last week were credited with helping to speed up demand in other lines used in the advertising field. Kraft jobbers here expressed pleasure not only because of the improved demand but also because local market conditions and fair trade practice methods were reported as greatly strengthened through recent developments.

The paper board industry, as evidenced by the report from President Frohman of the association, broadened out in a practical way to measure up with the psychological improvement. Newsprint markets were more healthy, both from greatly increased advertising lineage and from the price strengthening reported last week. Ground woods were also slightly more active. Waste papers were only fair but expected an upturn to follow the improvement now reported in the regular lines.

News of the Trade

The Consolidated Water Power & Paper Company, of Wisconsin Rapids, Wis., has recently announced the addition to its line of a new bond paper placed upon the market under the name of "Modern Form." The paper is termed "the product of years of experience in the manufacture of high quality sulphite papers of perfected refined mechanical pulp content." Its opacity and bulk are said to exceed those of average bond papers by 12½ per cent. The paper is suitable for house organs, sales bulletins, price lists, menus, programs, novelties, office forms, route lists, quantity broadsides and folders and for other uses. Modern Form is available in 20 and 16 pound substance and in white, canary, blue, pink, buff, green and goldenrod.

Consolidated has also just completed the mailing of the sixth of a series of pieces in relation to Production Book—the final mailing of the series. Each of the mailings has discussed one of six reasons for the use of Production, an English Finish book paper. The sixth reason "acceptability" follows price, opacity, bulk, printability and uniformity as major qualities of the Consolidated product. In both advertising pieces the company emphasizes communications from printers and other paper users setting forth the advantages and exceptional qualities found in these papers "in comparison with even higher priced products." The Modern Form circular contains facsimile reproductions of six separate letters from different parts of the United States while Production Book folder number six includes copy of an entire magazine printed on that paper. All material sent out, according to Burt Williams, promotional director, carried the imprint of the paper merchant distributing the paper in the territory where the pieces were sent.

The paper and printing industry report on business for the seventh federal reserve district, covering the States of Illinois, Indiana, Iowa, Wisconsin and Michigan, gives further indication that conditions have appreciably improved in this section. The 559 firms reporting as of the week of October 15 showed 63,606 wage earners with a total of $1,493,000 in earnings, representing an 0.2 per cent increase in wage earners as compared with September 15 and of 1.2 per cent in earnings as compared with the same date. This corresponds with a 1.5 decrease in wage earners and a 2.5 per cent decrease in earnings for the 10 industries comprising the manufacturing group and for the same period of time.

It is reported that the Chicago paper merchants have decided not to open their places of business on Monday, December 24, the day prior to Christmas. Obviously, the jobbers believe it not only practical to continue the week-end shut down over the holiday but also, in this way, to assist in the observance of the Christmas day.

Indianapolis Demand Expands

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., December 3, 1934—Gradual increases in demand for many paper lines during the past week, in spite of the holiday has been encouraging to the trade as a whole. It is certain now that strictly holiday demand will be considerably greater than it was last year.

The upward trend is reflected in the fine paper field. Demand for ledgers and bonds has expanded somewhat, as also have books and ledgers. The somewhat increased activity in advertising of the direct by mail houses and the industries which put out catalogues more or less regularly, has had something to do with this expansion in the fine paper field. Local off-set printers report that some really fine work is being done and more being contracted for. Color printing has come to the front in direct mail and catalogue work more this year than last.

Newsprint demand is improving steadily with the approach of Christmas. Immediately following Thanksgiving the merchants began their first Christmas advertising and the opening blast was heavy. If it is any indication of the business to follow, newspapers should be better fixed in Indiana this year than since 1928. Prices are holding firm. In fact prices on practically the entire paper line are strong and consumers seem to be more willing to make commitments than they have for some years.

Common papers also are moving steadily. Demand for paper bags is increasing as also is that for wrappers. Large bags designed particularly for the cleaning trade are moving nicely, better in fact than they did in the summer when light clothing was the rule. Building paper demand is slightly off, due to the lateness of the season. The weather as yet has not been such as to stop building, but the trade is looking for little more business until after the turn of the year.

Demand for Paper Moderately Active In Boston

Volume of Fine Paper Orders During November Compares Favorably With Preceding Month's Record—Sulphite Bond Papers Attract More Interest—Wrapping Paper Request Well Maintained—Box Board Market Rather Quiet—Paper Stock Continues Listless

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 3, 1934—In spite of the holiday occurring during the week and the fact that it was the last of the month, business with paper merchants as a whole was at least fair. At one large house it was stated that the volume of fine paper orders was almost on a par with that of October, a good month. At another house it was intimated that activity was increasing each week. There was somewhat more interest in sulphite bond. Wrapping paper held its own. Box boards was rather quiet, although prices continued at the same levels, as for a considerable period. Leather board manufacturers are looking for a better business than they have had for some time, with the making of shoes for the spring trade. Demands for leather board is reported to have been dull for several months.

Paper stock remained generally quiet, although a demand for corrugated boxes for use in making leather board is anticipated. Prices throughout the lists remained unchanged. Mixed papers and old newspapers, under Government controlled prices, continued quiet. Most of the large mills were closed during the week, because of lack of orders, according to report. Khaki cuttings and O. D. khaki, which advanced during the previous week to .03¼ @ .03½ and .03 @ .03¼, respectively, continued in demand.

News of the Trade

Announcements have been issued to various customers in the New England territory that the St. Regis Paper Company is sending a car on the tenth and twenty-fifth of each month to both Springfield and Boston containing printing and wrapping papers from the several mills located in the vicinity of Watertown, N. Y. The company is doing this in order to improve service to the paper merchants in New England.

At a sales meeing held at the office of Carter Rice & Co., Corp., Saturday morning, Norman Harrower, president of Linton Bros. & Co., spoke on his pet subject. Bristols, outlining the advertising campaign being planned for 1935. The campaign will be a combination of direct mail and publication advertising. Frank H. Winter, sales manager of Carter Rice & Co., presided.

The Marvellum Company, Holyoke, Mass., manufacturers of box coverings, "paper distinctive," of which Henry L. Goodman is a New England representative, has issued two new books, Nos. 89 and 90. Book No. 89 contains a swatch of Embassy Papers in white and sixteen colors—blue, turquoise, light blue, dark blue, light green, green, dark green, buff, brown, dark orange, lavender, violet, light gray, dark gray, pink and scarlet. Book No. 90 includes two swatches of Cretonne Papers, each swatch showing a different type. In the first one are samples of white, buff, lavender, turquoise, pink, green, dark blue, scarlet and black. In the second are the same with the addition of light gray and light blue.

Lyndon Blaine Tewksbury, Jr., son of the vice-president of Spaulding & Tewksbury Company, is a freshman at Yale College, where he is specializing in chemistry. Mr. Tewksbury, Sr., is a graduate of Yale in the Class of 1902.

Charles I. Foster, New England manager of the American Writing Paper Company, with office in this city, went to Summit, N. J., for Thanksgiving, accompanied by his family. E. H. Sussenguth, a salesman for the company, with headquarters at the same office, passed the holiday in Holyoke, accompanied by his family.

Joseph Greenblatt and Louis Helfland, doing business as Brockton Wall Paper Company and Quincy Wall Paper Company, have filed voluntary petitions in bankruptcy in the Federal District Court in Boston. Liabilities are given as $11,723; assets, $2,745.

Commodity Standards and NRA Codes

The National Bureau of Standards has completed a survey of commodity standardization as affecting proposed and approved codes of fair competition, according to an announcement in its October Technical News Bulletin. Having compiled a complete library of nationally recognized commodity specifications, completely indexed on a commodity basis, and intercompared critically, especially effective service has been rendered to the Consumers' Advisory Board in reviewing all of the proposed Codes of Fair Competition to insure the insertion therein of proper references to quality standards to safeguard the consumers' interest. For 653 of the 1,233 codes and supplements reviewed for the Consumers' Advisory Board, there were located specifications formulated or sponsored by 187 separate agencies. To these specifications 3,177 individual references were suggested, in addition to a single group of 205 ASTM specifications. In 198 of the 519 codes and groups of codes and supplements that had received official approval up to and including September 30, 1934, there were included definite references to the requirements in existing standards of industries or trades, or to the creation of committees to formulate standards. Of the 85 references in the approved codes and supplements to definite existing standards or designated agencies to cooperate in the preparation of standards, 41 were to the National Bureau of Standards.

Accompanying the above announcement are the names of sponsors of the specifications, standardizing agencies involved, and the codes in which references are made to either existing or proposed standards.

Schroon River Paper Mill Busy

[FROM OUR REGULAR CORRESPONDENT]

WARRENSBURG, N. Y., December 3, 1934—All of the machinery is being used at the plant of the Schroon River Pulp and Paper Company, which opened recently, after being closed for three years. The daily output of the mill is being sent to the firms who have contracted for it as fast as it is made.

Due to the scarcity of water in the Schroon river, pulp is being bought for the mill, but as soon as the river rises sufficiently, the four grinders will be set to work. This will give added employment to 20 to 25 men.

Philadelphia Paper Market Is Marking Time

Business Sentiment In Local Paper Industry Levels Off—Slight Rise In Sales Volume During Late November Reported—Basic Conditions In Both Fine and Coarse Paper Sections Better Than In Corresponding Period of Preceding Year

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 3, 1934—As noted in these columns a few weeks ago, there has been a "levelling off" of business sentiment in the paper industry. No pessimism has developed, likewise no new optimism. There is little or no disposition on the part of those in the trade here to make long-term commitments of any sort. It is a recognized fact that conditions are in a state of flux, with Washington the controlling factor.

One leading paper merchant stated that there was a slight rise in volume in late November, and, unless he misses his guess, there will be a further slight boost in December, a "levelling off" in January—and a steady rise toward better levels in the late winter and early spring months. This, he added, is not merely conjecture, but is based on the best information obtainable. Basic conditions in both branches of the industry—the fine and coarse—are unquestionably better than they were a year ago. From a symposium conducted among the paper merchants, we learned that the month of October was a "banner" month in the paper industry.

In the waste paper industry there were reports of more demand for old kraft paper.

Paper and Cordage Association

The Philadelphia Paper and Cordage Association held its regular monthly meeting at the Adelphia Hotel in the Rose Room, with President George K. Hooper in the chair. This was practically the last business meeting of the year, and was principally devoted to making plans for the Christmas entertainment on December 19 at this same hotel. Mayor Moore will be guest speaker and will address the members and guests and fifty boys and girls who will be entertained on this occasion. The Salvation Army, as is the custom, will select the worthy and unfortunate children to join the party. A large Christmas tree will be decorated and placed on the platform, surrounded with the usual games, toys, clothing and gifts for the children that will be distributed by a real Santa Claus, assisted by the entertainment committee, headed by Leslie C. Bartlett, chairman.

It was explained to the members by President Hooper that eleven months of the year the primary object of business men is to obtain amusement and pleasure for themselves, but the twelfth month of the year is the time when energy and resources should be devoted to those to whom fate has been less considerate. It has proven on every occasion, said President Hooper, that in applying this plan to the functions of this association, it becomes the most enjoyable and profitable of all the monthly meetings. The Rev. Croswell McBee, Chaplain and Rector of Old St. Davids Church, will pronounce the blessing, after which Mayor Moore will make his address, and while a four-piece orchestra is playing, the turkey dinner will be served. This is the one occasion of the year when the members are requested to bring their wives and friends. Upwards of two hundred are expected to be present.

President Hooper further said that this association is unique in that it has nothing tangible, such as a club house, golf course or place of amusement to attract and hold the members. The real value of the association lies in the intangible things of life, which, after all, are the most important and most valuable, namely—real friendships. In no other similar association is it possible to meet one's friendly competitor on more favorable terms than at the monthly meetings of this association, which boasts of having practically all of the representative paper and cordage houses as well as envelope manufacturers in Philadelphia enrolled in its membership.

Considerable business as a result of these friendships that have been developed at the meeting has been acknowledged by those who heretofore had been unknown to each other. This result was mainly accomplished by each member supplying his letter-head, containing sales information of his company, to J. R. Howarth, who compiled these in book form, alphabetically arranged, which Mr. Howarth presented to each of the members. It thus became possible for each member to be thoroughly acquainted with the items sold by each of the rest of the members.

Officers Nominated for Ensuing Term

The Nominating Committee, of which Vincent A. Dirvin is chairman, presented the following slate to be voted on at the December meeting: President, Harry S. Platt, Denney Tag Company; vice president, Willard Parkes, Garrett-Buchanan Company; treasurer, Fred I. Brower, Atlantic Gummed Paper Corporation, and secretary Vincent A. Dirvin, Paper Manufacturers Company. Mr. Hooper, the present president, announced he was not a candidate for any position or office. He summed up the progress and growth of the association for the past eight years, and thanked the officers and members for their untiring efforts and cooperation in making the association not only the largest of its kind in the country, but one that placed emphasis on the intangible but vital phases of life, namely an opportunity to express unselfish motives and friendly emotions. He expressed the hope that other important cities in the near future would develop similar organizations which would be the means of producing similar splendid results, and stated that they would welcome the opportunity of having as their guests representatives of any paper trade association in the country at the Christmas party, adding that reservations may be made through Secretary Harry S. Platt, Real Estate Trust Building, Philadelphia.

News of the Trade

As is the custom at holiday season, J. R. Howarth, of the J. R. Howarth Paper Company, presented to each of his 27 employees a 15-lb. turkey this Thanksgiving. These turkeys were selected early in the Spring by Mr. Howarth at a nearby Pennsylvania farm. They were sequestered in a pen by themselves and were milk fed. As a testimonial of their appreciation and gratitude, Mr. Howarth received from his employees a letter stating that the turkeys were pronounced by their families and themselves as the most delicious it had ever been their good fortune to eat.

William C. Kreeger, assistant to executive secretary Howard P. Beckett, has left the city for an extended trip through the west.

Henri Conradi, the very genial floor manager of Garrett-Buchanan Company, has fully recovered from his recent indisposition and is back at his desk.

Delaware Valley TAPPI Discusses Grading

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry held its twenty-fifth meeting at the Engineers Club, Philadelphia, on Tuesday evening, February 27, 1934. Harvey P. Cannon of the Container Corporation of America presided as chairman.

H. P. Carruth on Grading Paper

The speaker of the evening was H. P. Carruth, President of Dill & Collins Inc., and chairman of the Grading Committee of the Book Paper Manufacturers Association. Mr. Carruth pointed out that the industry has for years been developing a system of grades. This is illustrated by the existing names of the trade associations connected with the A. P. P. A. These include book paper, writing, kraft, etc.

Under the codes of fair competition the need for defining grades became obvious, particularly when the system of open price filing was adopted.

This problem of having companies sell on a basis of "grade-upping" brought particular attention to the need for grading. Paper has always been sold on the basis of price, service and quality.

The organization of the Central Grading Committee was described. Particular efforts were made to have this committee made up of sales, manufacturing and technical representatives.

The elements relating to the price of paper include cost, processing (such as supercalendering), materials and use requirements or properties of the finished product.

During the past few months the greatest interest has been relative to the subdivisions within a paper division. For example in sulphite bonds the two grades included two watermarked grades and two unwatermarked grades. This led to the establishment of Nos. 1, 2, 3, and 4 bond grades.

Formerly there was Eastern and Western book paper. Eastern book was usually made from wood pulp and the Western sheet contained deinked stock. Although there were differentials in price between these two classes there was some overlapping.

Grading Procedure

The companies in the book paper groups were requested to submit samples of their papers to the Grading Committee, at a meeting held at the Drake Hotel in Chicago. The samples were then subjected to visual examination by members of the committee to see if any uniformity of selection of grades would be made.

Formation and Brightness

Each sample of paper was then tested in the laboratory. When the test results were examined no outstanding correlation was evident with the exception of the properties, formation and brightness.

Since two companies had methods for measuring brightness they were asked to get together and develop an instrument that could be used by the book paper industry. Such an instrument was then developed by the Kimberly-Clark Corporation, Mead Corporation and the General Electric Company.

Formation was definitely related to printing qualities and brightness was related to pulps used in the papers and thereby to the cost.

Less technically minded companies tended to grade papers according to furnish. One mill using a mixed formula of deinked stock and good unbleached sulphite was able to make a sheet that was superior to papers in a higher grade. This illustrated the futility of grading according to furnish.

Instrumentation

The problem of the influence of sizing on paper grades led to the need of a study of instruments to measure paper quality.

Mr. Carruth stated that one of the lasting benefits that is growing out of the N. R. A. is the developing of instruments and a technical consciousness regarding paper properties. The brightness test was cited as a case in point.

Formation is measurable by a new instrument which is now on the market.

Another new instrument, not yet on the market measuring surface and polish (finish) was described.

All three of these instruments utilized the photoelectric cell, a new tool of technical control.

Art of Paper Making

A complaint frequently heard is that this new instrumentation work will take all the art of paper making. This was denied by Mr. Carruth who pointed out that greater display of skill is now required to make a sheet of paper based on rigid specifications.

The time is rapidly coming when a sheet of paper will be built up like any other structure. There is the job of predicting paper properties from furnishes, fillers, method of manufacture, etc. The job of the technical man will very soon be ten times as important as it is now.

We are in a period of our industry that may be considered to be revolutionary. More opportunities are coming for improving the industry. The N. R. A. has accelerated this rate so that we will reach a degree of development that ordinarily would come in the next ten or twenty years in the paper industry.

Those Who Attended

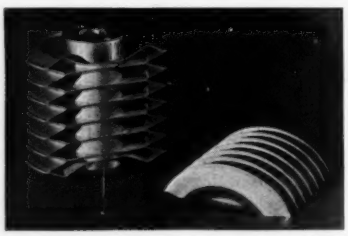
Those who attended included: R. E. Aiman, Paterson Parchment Paper Company, Modena, Pa.; E. J. Albert, Thwing Instrument Company, Philadelphia; Dr. J. S. Bates, Price & Pierce Ltd., London, England; R. M. Bates, T. M. Royal & Company, Philadelphia; V. A. Belcher, New Jersey Zinc Company, New York, N. Y.; C. A. Bentz, P. H. Glatfelter Company, Spring Grove, Pa.; M. G. Benson, Dill & Collins Inc., Philadelphia; R. G. Bettes, W. & L. E. Gurley, Troy, N. Y.; M. H. Boyce, Du Pont Company, Wilmington, Del.; E. Y. Brown III, Downingtown Manufacturing Company, Downingtown, Pa.; H. P. Cannon, Container Corporation of America, Manayunk, Pa.; C. E. Conley, Downingtown, Manufacturing Company, Downingtown; C. M. Connor, Valley Forge Laboratories, Conshohocken, Pa.; A. W. Cooper, Westinghouse Electric and Manufacturing Company, Philadelphia; O. C. Cordes, Downingtown Manufacturing Company, Downingtown; Jacob Edge, same company; E. A. Ellis, same company; J. H. Fritz, National Oil Products Company, Harrison, N. J.; I. G. Garcelon, A. M. Collins Manufacturing Company, Philadelphia; E. N. Slauner, Downingtown Manufacturing Company, Downingtown; Lois V. Hans, Pettengill Inc., New York, N. Y.; H. H. Hanson, W. C. Hamilton & Son, Miquon, Pa., J. C. Harper Jr., West Jersey Paper Manufacturing Company, Camden, N. J.; A. M. Hill, National Oil Products Company, Harrison, N. J.; Robert Hursh, New Jersey Zinc Company, Palmerton, Pa.; V. Jacobsen, National Aniline and Chemical Company, Philadelphia; L. Justice, Container Corporation of America, Manayunk; Paul Koenig, P. H. Glatfelter Company, Spring Grove; R.

W. Kumler, Bennett Inc., Wilmington, Del.; P. M. Oddengaard, Bulkley, Dunton Company, New York, N. Y.; A. J. Luettgen, P. H. Glatfelter Company, Spring Grove; R. G. Macdonald, Secretary of TAPPI, New York, N. Y.; H. F. Mahaley, P. H. Glatfelter Company; Spring Grove; W. T. Marble, Container Corporation of America; Manayunk; W. C. Massey, Paterson Parchment Paper Company, Bristol, Pa.; W. R. Maull, Dill & Collins Inc., Philadelphia; M. Craig Maxwell, McDowell Paper Mills, Manayunk; Charles McDowell, McDowell Paper Mills, Manayunk; P. J. Mulder, University of Pennsylvania, Pa.; E. H. Niederauer, Dill & Collins Inc., Philadelphia; G. A. Oechsle, Dill & Collins Inc., Philadelphia; J. E. Plumstead, Jessup & Moore Company, Wilmington, Del.; Jasper Purcell, McDowell Paper Mills, Manayunk; Walter Quinn, Container Corporation of America, Manayunk; S. D. Reynolds, same company; C. W. Rivise, Philadelphia; J. Carl Schmidt, Du Pont Company, Philadelphia; H. C. Schwalbe, Dill & Collins Inc., Philadelphia; C. A. Shubert, same company; Fred Streicher, same company; A. E. Sutton, Goulds Pumps Inc., Philadelphia; C. R. Sweet, Container Corporation of America, Manayunk; E. N. Wennberg, Continental Diamond Fibre Company, Bridgeport, Pa.; H. E. Whitaker, Dill & Collins Inc., Philadelphia; F. E. Winslow, General Electric Company, Philadelphia.

A New Reinforced Sheave

Under the name of Duro-Brace Texsteel Sheave, the Texrope Division of the Allis-Chalmers Manufacturing Company, is introducing a new reinforced steel sheave.

The outside walls of sheaves sometimes bend under the strain of excessive overloads, with the result that they are



thrown off true. The outside walls of the new Duro-Brace sheaves are reinforced by a convex steel plate, which strengthens these vulerable areas to so great a degree as to practically eliminate the possibility of distortion, irrespective of the strains to which they are subjected.

Welding at the rim and web, for additional strength, and the interior grid-type construction, for rigidity, which were advantageous features of the former design are retained in the new Duro-Brace Texsteel Sheave.

Robert Gair Co. Earnings Increase

E. Victor Donaldson, president of Robert Gair Company, Inc., today sent the following notice to stockholders:

"The board of directors of your company has voted to publish a statement of earnings at the end of each quarterly period, commencing with the first quarter of the year 1935. While the customary audit for the year 1934 will not be made until the close of the year, company figures indicate that the net earnings to date exceed those for the corresponding period of 1933.

"The usual report of the Company's operations for 1934 will be mailed to shareholders as soon as completed after the close of the year."

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 5, 1934—The Government Printing Office has received the following bids for 5,000 pounds of kraft paper; W. L. Jones, 4.75 cents per pound; Barton, Duer & Koch Paper Company, 4.53 cents; and Reese & Reese, Inc., 4.28 cents.

Bids were also received by the Printing Office for 5,000 pounds of yellow index; Walker-Goulard-Plehn Company, Inc., 13.96 cents; R. P. Andrews Paper Company, 11.866 cents; Barton, Duer & Koch Paper Company, 11.866 cents; Aetna Paper Company, 11.866 cents; Perkins-Goodwin Company, 11.866 cents; Mathers-Lamm Paper Company, 13.96 cents; Whitaker Paper Company, 11.866 cents; and Old Dominion Paper Company, 15.03 cents.

For 500 pounds of specially treated tympan paper; Mathers-Lamm Paper Company, 8.42 cents; and Whitaker Paper Company, 16.5 cents.

The Government Printing Office has announced the following paper awards:

The Whiting Paper Company will furnish 2,000 pounds of 25 per cent rag white ledger paper for pilot's licenses at 10.4295 cents per pound, bids for which were received on November 14.

Mathers-Lamm Paper Company will furnish 2,000 sheets of brown cloth lined paper at $146.28 per M sheets; the R. P. Andrews Paper Company will furnish 3,750 pounds of 50 per cent rag gray laid cover paper at 13.09 cents; and the same firm will furnish 10,000 pounds of No. 2 kraft wrapping paper at 3.79 cents per pound. Bids for these items were received on November 9.

Reese & Reese will furnish 9,005 pounds of sulphite manila paper at 4.9 cents per pound, bids for which were received on November 7 and George W. Millar & Co. will furnish 1,775 sheets of red jute tag board at $5.40 per M sheets, bids for which were received on November 2.

Argentine Casein Exports Decline

Exports of casein from Argentina during the first nine months of 1934 were substantially smaller than in the corresponding period of last year, according to a report to the Commerce Department's Chemical Division from Assistant Trade Commissioner Jule B. Smith, Buenos Aires.

Unofficial figures issued by the casein industry show that casein sales abroad during the 1934 period amounted to 15,017 metric tons compared with 17,699 metric tons in the January-September period of 1933, a decline of approximately 15 per cent.

Germany has been the most important market for Argentine casein in the current year, accounting for 37 per cent of total exports and was followed by England with 20 per cent; Netherlands, 10 per cent; and Japan, 7 per cent. Other important markets have been Finland, Spain, Italy, United States, Sweden, and Belgium. During 1934, casein shipments increased to England, Netherlands and Finland, while decreased exports were registered in the case of Germany, Japan, Italy and the United States, the greatest decrease being to the last-named market, the report states.

Official Argentine statistics covering the first nine months of this year show that casein exports were valued at 6,544,059 paper pesos compared with 5,002,113 paper pesos exported in the first nine months of 1933. The official average export value per metric ton of casein during the 1934 period was 438.08 paper pesos compared with 288.27 during the first nine months of 1933, the former figure showing an increase of 52 per cent.

Obituary

Arthur W. Eaton

[FROM OUR REGULAR CORRESPONDENT]

PITTSFIELD, Mass., December 4, 1934—Arthur W. Eaton, 81, one of the outstanding figures in the paper mill world of Berkshire County, died Friday at the Dalton home of Mr. and Mrs. Winthrop M. Crane, Jr., Mrs. Crane being his daughter. He had been in failing health for about a year and only recently returned from a visit to Atlantic City. He would have been 82 years of age Saturday last.

Mr. Eaton was a native of Cornwallis, N. S. Upon his graduation from a Nova Scotia high school he went to work at the age of 20 for the wholesale dry goods house of Burr, Taft & Co., of Hartford, Conn. He then became connected with the East Hartford Paper Manufacturing Company and in 1883 was treasurer and general manager. He was elected a representative to the Connecticut Legislature from East Hartford.

In 1883 he assisted in the reorganization of the Hurlbut Paper Company, of South Lee, of which he became treasurer and general manager and later president. Coming to this city in 1892 he founded the Berkshire Typewriter Paper Company and the Eaton-Hurlbut Company in 1899. In 1908 this developed into the Eaton, Crane & Pike Company, which in 1933 became the Eaton Paper Company.

Mr. Eaton was a Republican in politics and was one of the county leaders of the party. He served as alderman from Ward 4 and also was active in the formation of the Berkshire Hills Conference organized to promote the resort interests of Berkshire County. He was associated with Ralph D. Gillett, of Westfield, in building the Berkshire Street Railway System through the county. He was a director of the Berkshire Life Insurance Company and member of the Pittsfield Country Club and of the First Congregational Church.

Mr. Eaton was twice married. He leaves a daughter, Mrs. Crane; two sons, William H. Eaton of Pittsfield and Arthur C. Eaton of San Francisco, Cal.; seven grandchildren, Mrs. Alexander Simpson of this city, Mrs. Kimball Salisbury of Chicago, Ill., Mrs. George Monahan of Montreal, Can., Winthrop M. Crane, 3d, Arthur Eaton Crane of Dalton, Mrs. Maurice Woolverton of New Lebanon, N. Y., and Mrs. James D. Colt, 2d, of Pittsfield. There are also five great-grandchildren.

The funeral was held at the home in this city Sunday afternoon at 3. The Rev. John Gratton officiated and the bearers were six employees of the Eaton Paper Company long in service—Martin H. Rohan, Edward H. Purnell, William Messier, George Emerich, Frank H. Palmer and Lloyd A. Stokes. Burial was in the Pittsfield Cemetery.

William W. Campbell

LOCKPORT, N. Y., December 3, 1934—Former State Senator William W. Campbell, president of the Lockport Felt Company, died November 21 in his home, 468 Locust street. He had been ill several months.

Mr. Campbell had for many years been prominently identified with many of the leading civic and commercial enterprises in Lockport and Western New York. He probably attained his greatest public prominence as state senator, serving twelve years in the Legislature as a representative of the 47th senatorial district, embracing Niagara and Orleans counties.

Mr. Campbell was elected state senator in 1920, succeeding former Senator George F. Thompson of Middleport. He retired in 1932 when his friend and business associate, Senator William H. Lee, was elected.

He was born at Gasport, October 20, 1870, a son of Enoch S. and grandson of Robert M. Campbell. The family later removed to Connecticut. After an early course in the public schools of Suffield, Conn., Mr. Campbell attended the Connecticut Literary institute at Suffield.

He returned to Niagara county when he was 23 years of age and entered upon the study of law in the offices of S. Wallace Dempsey, former representative in Congress. In November, 1897, he was admitted to the bar.

In February, 1895, he was appointed special deputy county clerk, and served in this capacity for ten months under County Clerk James Compton. He then was named surrogate's clerk, under County Judge-Surrogate Charles Hickey and continued in that capacity until February, 1900.

Mr. Campbell entered upon the practice of law here in that year, occupying an office alone until September, 1903, when he formed a partnership with former District Attorney Burt G. Stockwell. This firm became widely known, and its business so increased that on December 31, 1919, a new partner, Henry D. Warren, was admitted, and the firm has since been continued under the name of Stockwell, Campbell and Warren, with offices in the Lohrmann building, Pine and Race streets.

He was president of the Lockport Felt Company, treasurer of the Harrison Radiator Corporation, president of the A. W. Jack Corporation, secretary of the Lockport Foundry Company, vice president of the Merchants' Gargling Oil Company, secretary of the Lockport Homes Company, a director of the Lockport Exchange Trust Company, and a director of the Lockport Board of Commerce.

He was a member of Red Jacket Lodge, 646, F. and A. M., Genesee Commandry, K. T., this city, and Ismalia Temple, A. A. O. N. M. S., Buffalo. He was a member of Grace Episcopal church, this city, the Tuscarora club, Lockport Town and Country club and Rotary club.

He is survived by his widow, Mary E. Garner Campbell, and three children, William W. Campbell Jr., Margaret Mary and Marion Jane Campbell, all at home.

Charles Calvin Jenks

HOLYOKE, Mass., November 30, 1934—Charles Calvin Jenks, retired paper manufacturer, died at his home, 275 Linden street, on November 21. He would have been 90 years old next March 6. Mr. Jenks had been in failing health for several months. He kept up in his active association with his business interests until April, 1933, when he retired as president of the Holyoke Savings Bank.

Mr. Jenks' death removes the last of the paper manufacturers who helped lead Holyoke to its world supremacy in fine paper making during the last quarter of the 19th century. He was superintendent of the Whiting Paper Company, and for many years its president. He also was president of the L. L. Brown Paper Company of Adams.

Mr. Jenks went to the public schools in Adams and prepaped for college at Taghconic Institute at Lanesboro. Graduating from there in 1862, he enrolled at Tufts College. He received his Bachelor's degree from Tufts in 1866. Last June was his 68th anniversary of his graduation. He is believed to be the oldest alumnus of that institution.

That summer, after completing his college course, he came to Holyoke to learn papermaking at the Whiting Paper Company. In 1865, his father and William Whiting had organized the Whiting Paper Company in this city. His father was treasurer of the firm. In 1869, Mr. Jenks

was named superintendent of the mill and served until 1885.

For the next three years, he was forced to retire from active business because of eye trouble but in 1888, he returned as superintendent and stayed at that position until 1892.

In 1891, he was elected president of the Whiting Paper Company and served in that office until 1896. At that time he extended his activities in the paper industry and became a director and president of the L. L. Brown Paper Company of Adams. That was in 1892 and he did not relinquish his associations with that concern until 1917.

After the death of William Whiting in 1910, Mr. Jenks disposed of his holdings in the Whiting Paper Company to William F. Whiting and the late Samuel R. Whiting. That marked his retirement from the Holyoke paper making field.

Mr. Jenks married Estelle R. Mosier of New York on November 18, 1868. Mrs. Jenks died in June, 1914. They had one son, Daniel Ashley Jenks, who lives at his father's home. Mr. Jenks leaves four grandchildren, Estelle, Nancy, Joseph and Daniel A., Jr.

Mr. Jenks was a member of the Mt. Tom Lodge of Masons, Mt. Holyoke Chapter, Royal Arch Masons; Holyoke Council, Royal and Select Masters; Connecticut Valley Lodge, Knights of Pythias; Mt. Tom Golf Club, and the Grand Council of Zeta Psi fraternity.

D. Wellington Rounds

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., December 3, 1934—D. Wellington Rounds, for many years prominent in paper mill circles of Northern New York, died last week at his home here following a heart attack. He was 82 years old and had resided here all his life. He had been in failing health for some time and announcement of his death caused little surprise. In his youth he became an expert millwright and for many years served as superintendent of the Dexter Sulphite Pulp and Paper Company when it was owned by the late James Outterson, pioneer manufacturer.

He also traveled extensively as an erecting engineer for the firm of S. Morgan Smith & Co., of York, Pa., being connected with the concern for nearly 25 years. His duties took him as far west as the Rocky Mountains and from Cuba to Newfoundland. He severed connections in 1923 to take a similar position with the James Leffel Company, of Springfield, Ohio. He remained with that concern for seven years before retiring in 1930 to return to his home here.

He was regarded as an authority on any problems dealing with water power. Being possessed of inventive genius he invented and patented a paper mill screen while connected with the local plant. Following his retirement he traveled extensively in Europe and upon his return he gave several addresses on the features of the countries which he visited. He was also prominent in educational affairs, besides taking an active interest in the promotion of civic welfare projects. His wife, three sons and two daughters are the principal survivors.

Charles Mack

HOUSATONIC, Mass., November 30, 1934—Charles Mack, aged 55, a veteran paper salesman and a former resident of this village, died suddenly recently at Rochester, N. Y. Mr. Mack, who was in the employ of the Parker-Young Paper Company of Boston as sales manager, was taken ill while on a business trip to Rochester and was taken to a hospital at that city, where he died. He was born in Springfield in April, 1879, son of John and Jane (Sheridan) Mack, and came to this village as an executive of the B. D. Rising Paper Company in 1900.

In 1909 Mr. Mack moved to St. Louis, Mo., where he established the Mack-Elliott Paper Company. Following the sale of this concern in 1927 Mr. Mack had been connected with several paper manufacturers in New York and Massachusetts.

During his residence in this village he was a member of the old Housatonic band and was a star guard of the Hose company basket-ball team. Beside his widow, the former Edith Elsden of this village, he leaves a daughter, Edith; one son, Charles E. of Westfield; two sisters, Mrs. G. L. Roberts of Springfield and Miss Catherine Mack of West Springfield and one brother, Commander C. H. Mack of Mare Island, Cal.

John C. Gerald

[FROM OUR REGULAR CORRESPONDENT]

CANTON, Mass., December 3, 1934—John Curtis Gerald, aged 73, for twelve years in charge of a large pulp mill at Howland, Me., for Brockton interests, died recently at his residence, 1378 Washington street.

Mr. Gerald was born in the Ponkapoag section of Canton, the son of John and Mary (Talbot) Gerald. Early in life he entered business, conducted a store in Canton for several years. After he had been at Howland, he came to Boston to be affiliated with the wholesale plumbing supply business as a partner in the firm of Sumner & Gerald, which on his retirement from business became the present firm of Sumner & Dunbar.

Mr. Gerald later purchased the food products business of G. H. Bent & Co., Milton, Mass., which he conducted until his death. For many years he was a director of the Canton Institution for Savings, secretary of the Canton Fish and Game Association and other business and community interests, from all of which he had retired, retaining only the chairmanship of the Canton Public Library Trustees.

A wife, Mrs. Mary Welch Gerald, and a brother, Frederick Gerald, both of Canton, are living.

William H. Hilton

[FROM OUR REGULAR CORRESPONDENT]

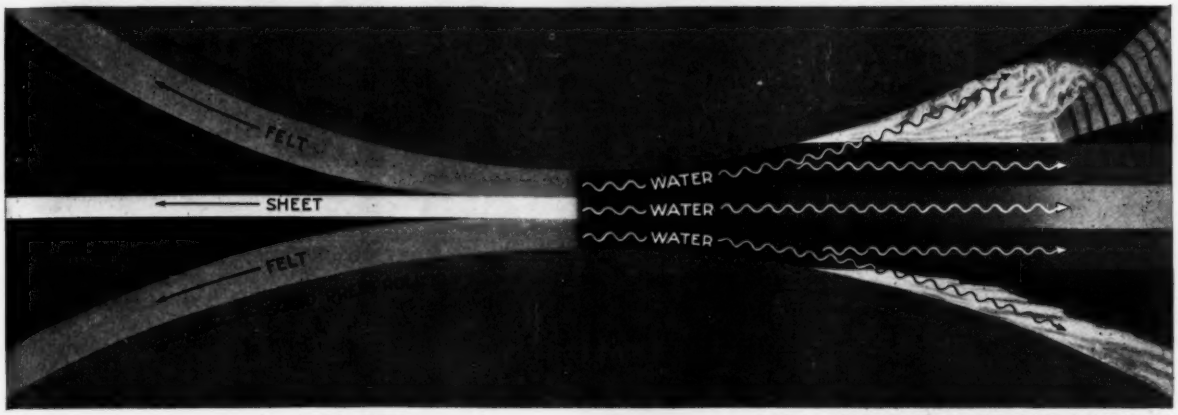
BOSTON, Mass., November 30, 1934—William H. Hilton, aged 61, of the United States Envelope Company, representing the Logan, Swift & Brigham Envelope Company Division, Worcester, in Boston, where he was widely known and very popular, died suddenly in Worcester, where he lived, November 17, of a heart attack. Mr. Hilton had called on the larger paper houses here for 36 years.

He was a member of Masonic fraternities, including the Shrine, and a prominent member of the Odd Fellows. The Boston paper trade was well represented at the funeral in Worcester, at which the clergyman of the Baptist Church paid a high tribute to his memory. There were many beautiful flowers. A quartet rendered several selections. A wife and daughter are living.

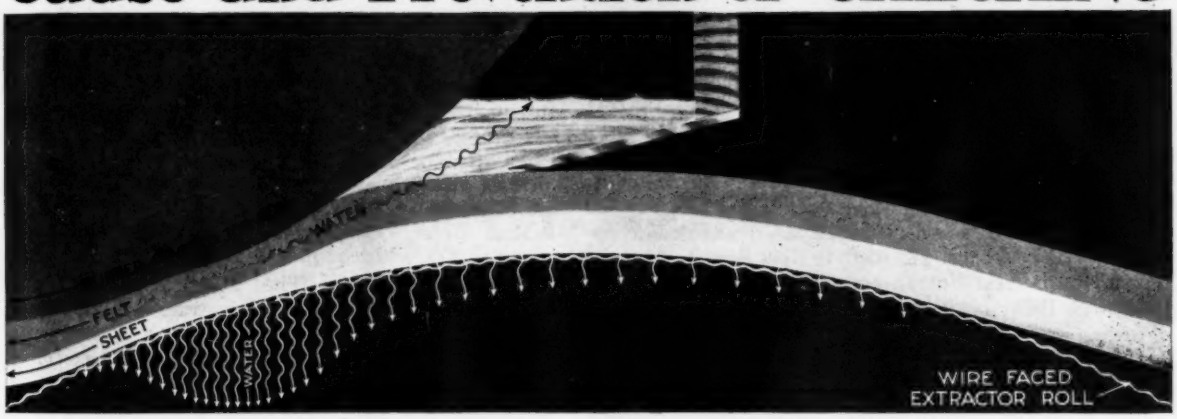
Herbert G. Lowe

RIDGEFIELD, N. J., December 3, 1934—Herbert G. Lowe, president of the Lowe Paper Company, which he founded here in 1905, died at his home, 135 Highwood avenue, November 26, as the result of a stroke. For several years he had been partly retired from business. He was born and educated in Fitchburg, Mass. The near relatives surviving are the widow, Mary Vaughn Lowe, and two sons, Donald V. and Malcolm G. Lowe, both officers of the paper company.

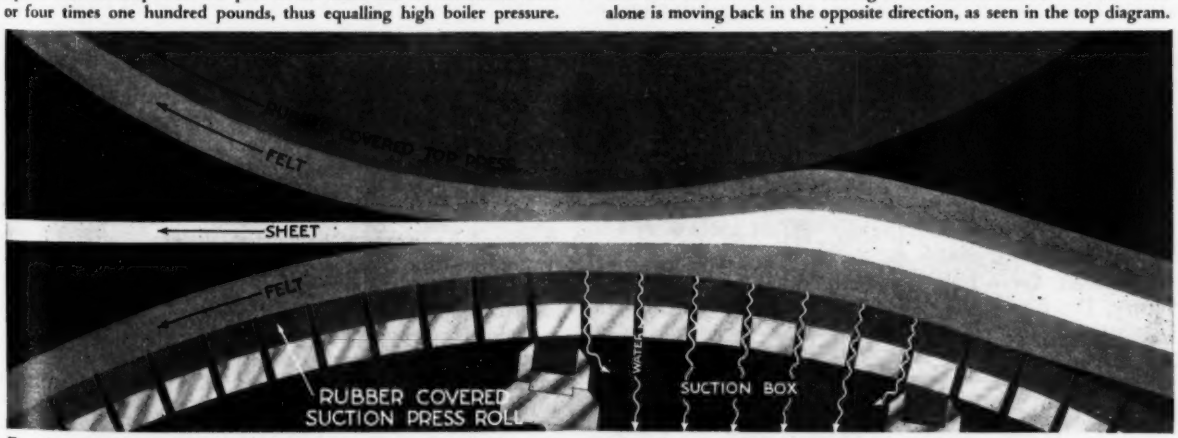
DOWNINGTOWN



Cause and Prevention of CHECKING



A pressure of one hundred pounds per lineal inch on the top roll of a plain press is on a line probably not over ¼" wide. The unit pressure per square inch developed in this part of the sheet can be considered three or four times one hundred pounds, thus equalling high boiler pressure. This pressure is forced backward through the on-coming sheet, practically blasting the fibres out of place and causing checks. Both the roll surfaces, both felts and the sheet are moving in machine direction, while the water alone is moving back in the opposite direction, as seen in the top diagram.



Downingtown Duo-Dehydration is designed to overcome the development of any high unit pressures by permitting the water to be removed from the sheet VERTICALLY DOWNWARD through the wire face of the Extractor Units (see center diagram) and through the drilled face of the Rubber Covered Suction Press Rolls (see bottom diagram). For further data as to how Duo-Dehydration assures safe running at high speeds and improves the quality of the sheet, write the Downingtown Mfg. Co., Downingtown, Pa. *Duo-Dehydration is covered by patents granted and applied for.*

No Board Machine is Modern *Without* DUO-DEHYDRATION

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Cleveland, Ohio—The Hankins Container Corporation, 3044 West 106th street, manufacturer of corrugated paper boxes and containers, has approved plans for new addition to plant to be two-story, L-shaped, 58 x 200 feet, estimated to cost close to $65,000, with equipment. Portion of unit will be used for storage and distribution. General contract for builidng has been let to Gillmore, Carmichael, Olson Company, 1873 East 55th street, city, and superstructure will be placed under way at once.

Menasha, Wis.—The Marathon Paper Mills Company manufacturer of waxed and processed papers, etc., has taken out a permit for construction of new one-story addition to local plant of Menasha Products Company Division on River street, estimated to cost about $25,000, with equipment. Work will be placed under way at once. As recently reported in these columns, company will also build a new one-story and basement addition at mill of its Ashland Division, Ashland, Wis., 62 x 96 feet, to be used primarily for storage and distribution. Contract for latter structure has been awarded to the Roy J. Murphy Company, 401 West Fourth avenue, Ashland, and superstructure is being placed under way.

Muskegon, Mich.—The Central Paper Company has arranged plans for reorganization under the new Federal bankruptcy law, and has secured approval of United States District Court at Grand Rapids, Mich., for procedure. Company specializes in the manufacture of crepe, tissue and kindred paper stocks, and is said to be planning early increased operations at local mill, following adoption of reorganization program.

Cleveland, Ohio—Globe Paper Company, 1506 Superior avenue, has completed plans and will soon begin work on three new additions to plant for storage and distributing service, consisting of two two-story units, each about 20 x 60 feet, and new one-story building, 28 x 30 feet. Estimated cost has not been announced. General contract has been awarded to the Bolton & Pratt Construction Company, Marion Building, city. H. M. Morse & Co., Sloan Building, Cleveland, are architects.

Savannah, Ga.—The Savannah Paper and Pulp Laboratory, Dr. Charles H. Herty, head, plans for early installation of new equipment in local experimental plant at River and West Broad streets, including a three-roll super-calendar unit and new coating machine, with auxiliary equipment. It is understood that order for primary machinery has been placed with the John Waldron Corporation, New Brunswick, N. J.

Chicago, Ill.—The Dearborn Paper Company, 860 Rees street, has taken out a building permit and will proceed at once with foundation and superstructure for new paper converting, storage and distributing plant at Twenty-first and Loomis streets, recently referred to in these columns. New unit will be of thoroughly modern type and equipped for extensive production and operations. It will be one and two-story, 130 x 460 feet, estimated to cost close to $80,000, with equipment. J. M. LaPoint is company engineer.

Grand Rapids, Minn.—The Blandin Paper Company is running on active production schedule for manufacture of newsprint, giving employment to a large working force in different departments. Owing to advance in material and labor costs under NRA, an increase of $2.50 a ton has been announced on newsprint, effective January 1, 1935, with a second similar advance to be adopted on July 1, 1935. It is proposed to hold to present production basis for an indefinite period.

Chester, Pa.—The Scott Paper Company, manufacturer of tissue papers, is reported to be arranging for immediate erection of new addition to mill, for which general contract recently has been let to Wark & Co., 1608 Walnut street, Philadelphia, Pa. It is estimated to cost over $35,000, with equipment.

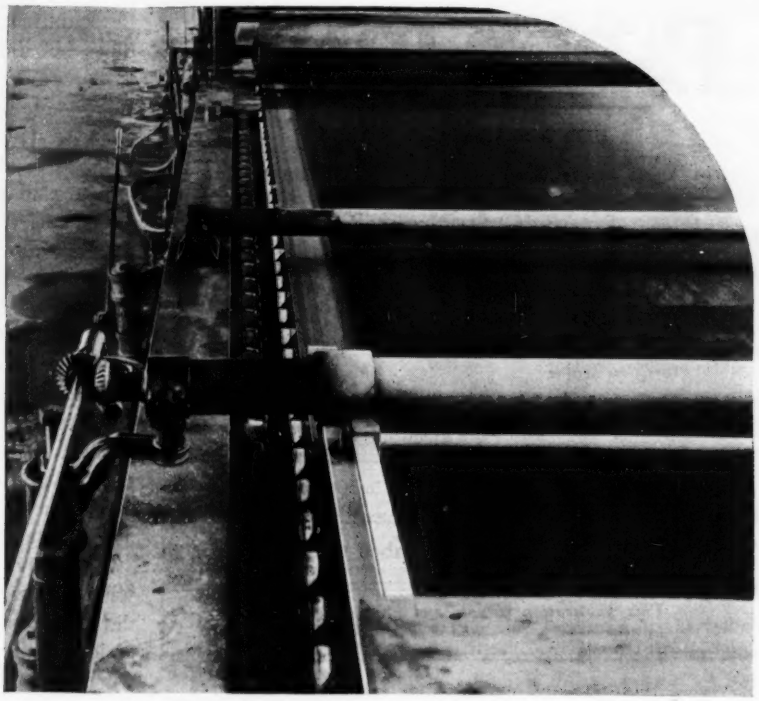
Kalamazoo, Mich.—The Paper Makers Chemical Company has awarded general contract to A. J. DeKoning, Kalamazoo, for new one-story building at Parchment, near Kalamazoo, for storage and distributing service. It is estimated to cost close to $25,000, with equipment. New unit is designed for increased service for materials for paper mills in this district. Superstructure will be placed under way at once.

Green Bay, Wis.—The Fort Howard Paper Company is awarding miscellaneous contracts for completion of new additions to mill, recently referred to in these columns, consisting of two one-story units, 60 x 120 feet, and 50 x 75 feet, respectively. Award for reinforcing steel and steel sash has been made to the Concrete Engineering Company, 176 West Wisconsin avenue, Milwaukee, Wis.; sheet metal work, roofing, etc., will be carried out by the Badger Sheet Metal Works, Green Bay; structural steel is being furnished by the Wisconsin Bridge & Iron Company, Milwaukee. As previously reported, general contract has been awarded to the Selmer Company, 305 East Walnut street, Green Bay. New additions will cost more than $35,000, with equipment.

Oslo, Norway—Steel & Gurholt, A/S K., 41 Johansgade, Oslo, are planning early purchase of quantity of machinery and equipment for pulp and paper manufacture, to be installed in a mill in Norway. A list of requirements is being arranged.

Brooklyn, N. Y.—The New York Paper Company, Inc., represented by Samuel D. Pressman, 152 West Forty-second street, has filed notice of change in capital from $20,000 to 200 shares of stock, no par value.

SKF EQUIPPED
BUILT BY
THE FITCHBURG
PAPER
COMPANY



YEARS OF PERFORMANCE PROOF OF SKF

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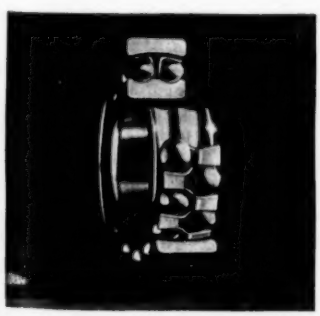

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THE OPPORTUNITY OF INDUSTRY TO PROMOTE BUSINESS RECOVERY

Four fallacies that retard recovery are outlined in a booklet just published by Farrel-Birmingham Company, Inc., machine builders of Ansonia, Conn., and Buffalo, N. Y. Written by Allen W. Rucker, well-known pricing authority, and N. W. Pickering, president of Farrel-Birmingham Company, Inc., the booklet, "Industry's Opportunity to Promote Recovery," makes very plain the essential steps needed to restore industrial activity, especially in the durable goods and service industries. "Regardless of the outcome of the biennial elections," say the authors, "it is very apparent that fundamental economic laws must emerge the victor in their contest with legislative fiat and 'planned economy.'"

"Obviously, a maximum volume of trade depends neither on high nor low prices, *per se*," the booklet adds, "but upon balanced prices, i.e., prices which promote the exchange of equal values. Industry needs to establish this fact inasmuch as an extension of the use of government credit to promote the exchange of unequal values is precisely the thing which prevents budget balancing.

"This fallacy bids fair to persist until industry establishes the real truth, namely, that the working hours per week can be shortened only as the productivity per worker increases. For example, during the period 1900-1930, the productivity per worker increased some 52 per cent—and the worker was rewarded by a 38 per cent increase in real wages, i.e., a 38 per cent higher standard of living and a 14 per cent reduction in working hours. From this record it plainly can be seen that if shortening of working hours proceeds faster than increases in productivity the worker must suffer a diminution in real wages and his standard of living.

"Manufacturers under the necessity for reducing costs must be allowed some flexibility regarding wage *rates*. To secure freedom to make such adjustments, it ought to be made plain to wage-earners and the public that such changes will be more than offset by an increase in the number of days worked and consequently in the larger annual dollar income thus made possible.

"In brief, there will be a community of interests when industry and worker concentrate on the best method of increasing the average annual income.

"It must ultimately be generally accepted that an increase in individual productivity is the factor determining both the annual income of workers and their real wages. For instance, in 1931 the workers in the paper industry produced an average value, each, of $3,439 and received an average wage per annum of $1,184. Contrasted with the clay products industry, in which the output per worker was valued at only $1,758, with the consequence that the annual wage per worker was but $877.

"Actually, of course, business and labor make profits with but few exceptions, by creating values which before did not exist—values in high annual wages, more goods at lower prices, greater employment and greater rewards for stockholders and workers alike. It is that fact which needs to accompany and become a part of business' recovery program."

A CHRISTMAS IMPULSE

On the day after Thanksgiving there appear throughout the land those bright little harbingers of the holiday season called Christmas Seals, which have become familiar to all of us as the means by which the 2,000 affiliated tuberculosis associations of this country raise funds to carry on their work. This year they come to us not only with a plea for continuance of our support, but as a commemoration of one of the most important contributions to medicine ever made in this country.

Examination of the seals shows they bear the picture of a little cottage. Insignificant though it seems, this one-room structure was the first sanatorium in the United States in which the modern treatment of tuberculosis was begun. It became the nucleus of a famous institution and marked the beginning of the sanatorium movement in this country.

The date was February, 1885; the place, Saranac Lake, N. Y. Dr. Edward Livingston Trudeau had cured himself of tuberculosis after discovering that the more he rested the better he felt, and had built and opened his little sanatorium for the treatment of others.

In those days the Adirondack Mountains were a rugged wilderness paradise for hunters, so news of Dr. Trudeau's work seeped but slowly to the outside world. Eventually, however, the attention of the medical world was focussed upon him, and he was showered with honors.

Like every good idea, Dr. Trudeau's sanatorium soon had many disciples, and today, in contrast to his one room cottage with but two beds, there are in this country 659 modern sanatoria containing 86,917 beds. The importance

of the sanatorium movement lay in the fact that at that time tuberculosis was by an enormous margin the leading cause of death in this country. No method of cure was known for it, and it was taken for granted that a diagnosis of tuberculosis was practically a death sentence. Trudeau showed how the disease could be cured by sanatorium treatment.

The organization of the National Tuberculosis Association in 1904, with the unanimous election of Dr. Trudeau as first president, marked the beginning of the nation-wide battle against the disease. Since then excellent progress has been made, but it is still the country's leading public health problem because it kills more persons between the ages of 15 and 45 than any other disease. It takes its victims chiefly from among young women between 15 and 30 years of age, from working men between 15 and 45, and from Negroes.

Such facts are food for thought; even amid our joyous anticipation of Christmas. Cerebration upon the subject can result in only one impulse, an impulse that is entirely appropriate to the season of good will to men — Buy Christmas seals and help overcome tuberculosis.

Schwartz & Co. Ordered to Desist

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 5, 1934—The Federal Trade Commission has ordered Schwartz & Co., Inc., of Philadelphia, dealer in solid and corrugated fiber board boxes, to cease and desist from representing that it manufactures the boxes it sells.

According to the findings in the case, a substantial proportion of the boxes sold by this company are purchased from manufacturers, and sold to wholesalers, retailers and others "primarily not for resale, but for use as shipping containers."

The Commission's order directs that the respondent cease stamping, stenciling or printing on the boxes, or permitting others to so label them in its behalf, with a certificate prescribed by Rule 41 of the Eastern railroads' official classification committee, as to represent that it is manufacturer of the boxes.

According to the findings, the respondent company has attached to its products the certificate required by Rule 41 and has stamped its name and address in the place where the box-maker's name and address belong, a practice tending to deceive buyers into believing the respondent to be a manufacturer.

E. A. Charlton Heads Paper Division

E. A. Charlton, vice-president of the International Paper Company, has agreed to serve as chairman of the Paper Industry Division of the Commerce and Industry Committee of the Citizens Family Welfare Committee, according to an announcement made by Myron C. Taylor, chairman of the Commerce and Industry Committee.

James G. Blaine, chairman of the Citizens Family Welfare Committee, has announced a minimum goal of $2,000,000 to be used in assisting private welfare agencies in providing for approximately 20,000 families whose needs are not taken care of by public relief. Solicitation of funds will end on December 19.

In organizing his Division, Mr. Charlton is enlisting leaders in the paper industry who will call on employers and employees for subscriptions.

Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Industry Production Ratios for the designated periods.

	Number Reporting Mills	Capacity	Production Ratio Total
September, 1934	292-299	—	59.4%
October, 1934	297-367	—	64.5%
*Week ending November 3, 1934	370	153,259	64.2%
*Week ending November 10, 1934	366	144,494	59.8%
*Week ending November 17, 1934	305	122,129	59.9%

The weekly paper capacity (based on 6 days of 24 hours each) for all mills operating wholly or partially under the General Code for the Paper and Pulp Industry is approximately 175,000 tons. This figure has been tabulated from mill questionnaires and in certain instances from daily capacities given in Lockwood's Directory of the Paper and Allied Trades.

Detailed statistics showing the number of mills reporting by ratio groups are given below:

NUMBER OF MILLS REPORTING

Ratio Limits	Week Ending November 5 1934	November 10 1934	November 17 1934
0% to 50%	146	146	129
51% to 100%	224	220	176

* Subject to revision.

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

Week ending September 8	53 per cent
Week ending September 15	67 per cent
Week ending September 22	62 per cent
Week ending September 29	64 per cent
Week ending October 6	64 per cent
Week ending October 13	64 per cent
Week ending October 20	64 per cent
Week ending October 27	63 per cent
Week ending November 3	61 per cent
Week ending November 10	58 per cent
Week ending November 17	57 per cent

Revised statistics covering delinquent mill returns will be shown in later reports.

The First Soviet Paper Machine

It is stated in *Russian Economic Notes* issued by the Department of Commerce at Washington that "a Leningrad plant has just completed the first paper-making machine manufactured in the Soviet Union. Its capacity is 32 metric tons a day, at a speed of 200 meters a minute. It weighs 400 tons, and consists of 80,000 parts; 35 cars were required to transport it to the new Kama paper combine.

"This machine was built from Soviet plans, of Soviet materials. In quality it is equal to the German machines, and excels these in speed. The Leningrad plant is proceeding with the manufacture of 6 more of these machines, particularly of one for Kama to produce 35 tons of writing and book paper a day. The present machine will be used chiefly for wrapping."

Heavy Rains Increase Holyoke Water Power

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 4, 1934—The rains of the past few weeks have had an exceptionally favorable effect upon water power in this part of the state and full power for the paper mills is believed to be assured through the winter months. At Holyoke the water has been running four feet or so over the dam for nearly two weeks and as the ground is not frozen the rainfall has seeped into the ground and augurs well for a steady supply. Severe cold generally locks the brooks and tributaries causing low water, as does also a blanket of deep snow.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Micarta Paper Mill Applications

By H. F. Horne[1]

Laminated materials are daily finding new places in the modern industrial world as the combination of properties which they possess become better known. Our interest today lies mainly with the possibilities that these materials offer in the paper industry, but we felt it might be helpful to trace a little history of the development of laminated phenolic materials, particularly those manufactured by Westinghouse and known by the trade name of Micarta.

In the early days of the electrical industry, mica, varnished cloth, and hard fiber were the most suitable materials for insulating purposes, with mica occupying the preferred position. It, however, had serious disadvantages in size and strength since it was obtainable only in small pieces and was quite brittle. Varnished cloth was stronger and easier to handle, but required mechanical support. Fiber had good mechanical strength but absorbed moisture and lost its electrical qualities. A distinct need existed for an insulating material of good mechanical strength.

About 1904, a process was invented which consisted of winding a fibrous material treated with a binding agent of shellac around a round form or mandrel under pressure, and curing at an elevated temperature. The result was a tube of good electrical properties, fair rigidity and mechanical strength. Rectangular shapes were also made by softening the tube and forcing a tool of the desired shape into it.

In view of the success of Micarta in tube form, the manufacture of insulating plate appeared to be a simple and logical step. However, it was discovered that plates made of paper and shellac would not stand bending stress as delaminating occurred. Furthermore, heat such as that generated in electrical machines would soften the shellac, and the plates would collapse. Apparently, Micarta plates were impractical.

In 1907, Dr. S. H. Bakeland invented a synthetic phenolic resin which had unique properties for laminating work. This resin was named Bakelite, and practically all of the initial development work in adapting it to the manufacture of a laminated product was done in the Westinghouse laboratories in cooperation with Dr. Bakeland. After a considerable period of experimental work, both plates and tubes, as well as various molded shapes were made that had a valuable combination of properties. Some of the most important of these characteristics are excellent electrical properties, resistance to heat, resistance to water, and high mechanical strength.

[1] Westinghouse Electric and Manufacturing Company, E. Pittsburgh, Pa.

Up to 1914, little thought was given to the use of Micarta for other than insulating purposes. At that time, a Westinghouse engineer was troubled by the noise in the gear train of an experimental automobile generator. To eliminate the noise, rawhide and hard fiber gears were tried unsuccessfully. In the search for something better, Micarta was tried with highly successful results. Its light weight, great strength, and quietness in operation made it an excellent gear material.

During the World War, the same properties led to the extensive use of Micarta for airplane parts, such as propellers, control pulleys, fairlead bushings, and strain insulators. Incidentally, the "Southern Cross," which was flown across the Pacific by Kingsford Smith, was equipped with Micarta propellers.

In 1921, the growth of radio broadcasting and the manufacture of radio receiving sets created an enormous field for Micarta plate. No other material possessed so many desirable qualities for radio use. Undoubtedly, the rapid development of radio owes much to this product. More recently, a wide diversity of fillers and binder modifications has provided a range of materials with properties that open up possibilities quite removed from the original applications.

Low Coefficient of Friction

Thus it has been found that Micarta can be manufactured which has a very low coefficient of friction against metals using water as a lubricating agent. Its use for bearings, suction box covers, toe blocks, etc. thus suggest themselves. A few of these most outstanding applications may be mentioned in more detail.

The first experiments with Micarta suction box covers were carried out about four years ago using a high resin content duck filler with the laminations running parallel to the normal position of the Fourdrinier wire. These covers operated satisfactorily until the resin surface was worn through, after which a roughness developed which was undesirable. A cover was then developed having perpendicular laminations and thus presenting a uniform structure and density throughout the entire thickness of the board. A mathematical study was made to develop a drilling pattern which would absolutely equalize suction across the sheet and eliminate streaking. From reports of installations of these covers, they seem to offer several advantages such as power saving and less frequent resurfacing. In addition, we expect longer wire life results. This assumption is based on laboratory coefficient of friction

tests which prove a definitely lower figure for Micarta than for wood under a fourdrinier wire. This is, of course, also substantiated by conclusive proof of power savings amounting to more than four dollars per day on one machine operating on the West Coast. We thus feel that Micarta suction box covers offer solutions to some of the problems every paper maker is constantly up against, and the repeat orders which we obtain from the operators who have tried one or two covers are very encouraging.

Materials commonly used for doctor blades prior to the introduction of laminated materials had certain disadvantages. Some materials used were brittle and chipped. Others were hard and failed to clean the rolls properly without excessive pressure, which usually caused the rolls to groove and wear down. Micarta does not have these disadvantages. It will not chip, crack, nor warp. In addition, it is flexible, long wearing, uniform, and impervious to acid, alkalies, and pulp solutions. Instead of damaging the steel drier or calender rolls, a laminated blade puts a slight film on them which minimizes rusting during a shut-down. This is important because the highly polished drums oxidize easily.

Micarta doctor blades have been used to advantage on all rolls of paper machines requiring blades, from the bottom rolls at the wet end to the steam heated calender rolls. The life of a blade properly installed should be two years or more.

Blades may be had either with straight or beveled edges. Any thickness from ⅛ inch to ½ inch is available up to 300 inches in length. The long lengths give the advantage of a continuous unbroken wearing surface, and simplifies mounting.

Hundreds of Micarta doctor blades now in service have proved their superiority by reducing costs of maintenance, wearing longer, and cleaning better.

The covering of aluminum table rolls for fourdrinier machines make for a greatly improved unit. Micarta is not affected by weak pulp suspensions or moisture, and its weight being one-half as much as aluminum gives decided advantages over heavy brass sleeved rolls. This weight reduction can be appreciated on balance at speeds from 600 to 1,200 feet per minute.

In addition to light weight, the wear on the wire is greatly reduced because of the lower friction surface and the lower power required to turn the lighter roll. The pulp stock has little affinity for the treated surface and, consequently, reduces spoiled sheets and plugged wires. Covered rolls eliminate any electrolytic action which is so detrimental to good wire life.

There are numerous other places in the paper mill where laminated materials fit into the picture very nicely. The use of Micarta for shake springs, toe blocks, bearings, and many other applications is well established, and there is a very definite place for this material in the mills of both the fourdrinier and the cylinder types.

Revision of TAPPI White Water Standard

The Waste Committee of the Technical Association of the Pulp and Paper Industry has announced its intention to review and revise the TAPPI Standard M 400 p, on "Measuring, Sampling and Analyzing White Waters."

Exception has been taken to the use of volatile solids to represent fiber losses. There may be other criticisms and the Chairman, C. M. Baker, 2 South Carroll Street, Madison, Wisconsin, would be glad to receive these. Every member of the Technical Association that may be interested is invited to review the method in the TAPPI Manual of Standards, and write to Mr. Baker before December 22.

TAPPI Notes

W. H. Monsson formerly sulphite superintendent of the Munising Paper Company, Munising, Mich., is now with the Fibre Making Processes Inc., Chicago, Ill.

Knut Amberg, paper mill engineer from Finland is visiting American pulp and paper mills.

Shinji Kimura of the Mitsubishi Paper Mills Ltd. of Japan, is visiting American Paper Mills.

The annual meeting of the Technical Association will be held at the Waldorf-Astoria Hotel, New York, February 18 to 21, 1935. All desiring to present papers must notify the Secretary, R. G. Macdonald, 122 E. 42nd street, New York, not later than December 15, 1934.

Paul P. Hilton, formerly of the Scott Paper Company, Chester, Pa., is now in the Manufacturing Department of the Oxford Paper Company, Rumford, Maine.

Ben T. Larrabee, formerly sulphite superintendent of the Weyerhaeuser Timber Company, Longview, Wash., is now with the Brown Company, Berlin, N. H. Mr. Larrabee is a member of the TAPPI executive committee.

W. S. Hodges, secretary-treasurer of the TAPPI Pacific Section, has moved his offices from 600 N. Front Street to 414 Terminal Sales Building, Portland, Ore.

D. S. Davis, formerly mathematician for the Mead Corporation, Chillicothe, Ohio, is now a consulting mathematician with Dale S. Davis & Associates, 84 Hillside Road, Watertown, Mass.

J. R. Atwater, formerly of the John H. Heald Company of Lynchburg, Va., is now with Dill & Collins Inc., Philadelphia, Pa.

E. H. Johnson, formerly research chemist at Northern Paper Mills, Green Bay, Wis., is now with the Du Pont Rayon Company, Buffalo, N. Y.

D. H. Boyce, formerly with the American News Paper Publishers Association is now with the Government Printing Office, Washington, D. C.

A. F. Gallaugher, who was chief chemist of the Interlake Tissue Mills, Merritton, Ontario, is now secretary-treasurer of the Western Chemical Industries Ltd., Vancouver, B. C.

Dr. J. S. Bates of Price & Pierce, London, England, and Arthur Baker, managing director of Bowaters Ltd., Gravesend, Kent, England, were recent visitors in New York.

John Shuber, formerly of the Champion Fibre Company, Canton, N. C. is now technical director of the St. Regis Paper Company, Deferiet, N. Y.

TAPPI Annual Meeting

The Technical Association of the Pulp and Paper Industry will hold its annual meeting at the Waldorf-Astoria Hotel, New York, N. Y. February 18 to 21, 1934.

Anyone desiring to present a paper must notify the Secretary, R. G. MacDonald, 122 E. 42nd street, New York, before December 15, 1934. The Notification must be accompanied by an abstract of the paper to be presented.

All manuscripts of papers to be presented must be submitted in triplicate to the Secretary before January 12, 1935. (Manuscripts may be submitted to divisional or committee chairmen instead of the Secretary if authors desire to do so.)

The annual meeting program will feature the following main topics: Management Methods, Pulp Testing, Paper Testing, Paper Coating Fourdrinier, Paper Machine Wet End, Steam Plant Power Generation, Sizing, Color, Mechanical Pulping, Stuff Preparation, and Drier Drainage.

TAPPI Pulp Specifications Committee Progress Report

By H. C. Schwalbe[1]

A few years ago the pulp specifications committee of the Technical Association of the Pulp and Paper Industry was set up to study the possibilities of specifications and tolerances for chemical pulps. Just as in other industries such specifications would replace vague terms with definite data, they further would eliminate a large amount of unnecessary testing of the same pulps and finally would permit the selection of the most suitable pulp for a scientific building up of paper.

That an energetic effort will bring results, even in our industry where the basic science of our materials is not yet sufficiently developed, has been proven with the seting up of successful paper specifications by the Code Authorities for the bond, book and other divisions of the American Paper and Pulp Association.

Last year, after a negative survey of all existing methods, the pulp specifications committee developed a system which was called the "percentage system." Due to the wide variety in testing methods it is not possible to compare the tests of one laboratory directly with the findings of another laboratory; but if four or more pulps have been tested by various laboratories, then these tests from each mill are comparable. By setting the weakest pulp equal to zero and the strongest pulp, which can be found in the commercial pulp trade, equal to one hundred a scale is found which allows all other pulps to be calculated in per cent.

Last year the committee reported about the application of this method on the tests from 28 laboratories. The results were quite encouraging. The pulp specification committee, therefore again this year sent two pulps to 22 laboratories and these mills cooperated splendidly. In this year's investigation two very difficult pulps were chosen to see if we could specify pulps which really are unusual, *or* if the system would fail under such extreme conditions. The first pulp was No. 1 regular Solka Alpha pulp, which hydrates in the *mill beater* slowly with a low initial Mullen, and which is then gradually increased to a very high test. Parallel to the Mullen test goes an initially low, but later very high, fold. The tear is exceptionally high and decreases slowly with beating. The other pulp was a Dexter Mitcherlich pulp with a high initial Mullen which is increased with beating, but proportionately less than the Alpha pulp. The fold is high and tear lower than for the Alpha pulp.

The calculations on the data received showed that one cannot calculate per cent ratios having only two pulps. If one attempts to calculate the tests of one pulp in per cent of the other, the errors in the original testing method are not sufficiently eliminated, and one has no means of finding the sensitivity of any specific testing method to differences in pulp properties.

Therefore, we had to use last year's data for the pulps A, the soft pulp, and pulp C, the strong pulp, and had to add the figures for both new pulps; the Alpha and the Dexter Mitcherlich. With this emergency procedure it was possible to calculate fairly good percentage ratios, but it would have been much better if all four pulps had been tested at the same time. Some laboratories had changed their procedures or added tests, which they had not reported last year.

In Table I a summary is given which shows the minimum and maximum values found. In the second column the range of the more probable tests are given, excluding obviously erroneous results. The third column gives the number of laboratories which reported tests falling into this range, and in the last column the percentage of this number of laboratories to all reported tests is given.

Analyzing this table we find that for Pulp A, 15 of 18 laboratories agreed quite well on bursting strength. On folding strength, 12 of 14 laboratories agreed fairly well. Not so well do the laboratories check on the Alpha pulp, where only 8 of 18 cooperating laboratories agree on burst. But in tear all mills agreed in a range of 70.3 to 77.4 per cent, which is excellent. On fold again, only 6 of 12 laboratories agree on a range of 24.1 to 55.6 per cent.

It is very interesting to consider why the mills did not check closer on burst and fold. All mills using the Niagara beater obtained high Mullen and fold figures, which are much higher than one can reach with an average mill beater. Still, theoretically, the Niagara beater tests are not all wrong, since by a special setting of the beater roll one actually can increase the Mullen and fold faster. But this is not the usual procedure, and for pulp specifications we need tests representing the *average* mill conditions which does not mean that they should go parallel to the beater work of an inadequately equipped mill. The ball mill, laboratory refiner and J. d'A Clark's kollergang gave better tests on the Alpha pulp.

To continue; on the Dexter Mitcherlich pulp 16 of 18 mills check quite well on burst and tear, and fair on fold.

On Pulp C all mills check close on burst in a range of 70.5 to 77.5 per cent. 13 of 16 laboratories give figures on tear ranging from 10.9 to 23.4 per cent. In fold 11 of 12 mills show 52.5 to 83 per cent.

One can conclude that these results are as good as one could expect. The first difficulty was that tests made in two different years, and with varying procedures, had to be compared. Secondly, the Alpha pulp was an unusual pulp unknown to most of the laboratories. It was probably not wise to use this "regular" Alpha pulp for this investigation. No. 60 Alpha made from hard wool would have been more suitable. Third, the testing conditions were frequently far from being the standard ones as proposed by TAPPI. If a mill uses an entirely different consistency, weight of pebbles in the ball mill test or different weights on the lever of the Niagara beater, etc., one cannot expect to get close checks with other mills using a standard procedure.

If the testing conditions are close to the standards, then we will receive comparable, practically useful tests. It will not be necessary to install all new equipment to make pulp specifications possible, but a calibration of the testing apparatus is necessary just as with any other test.

* Presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, Portland, Ore., Sept. 10 to 13, 1934.

[1] Member TAPPI, Director of Research, Dill & Collins, Inc., Philadelphia, Pa.

It is not necessary in the present stage of such work to ask for a method which would permit including all specialty pulps in one specification system. If we can devise a system which allows the specifications of all those pulps which are traded in large tonnages, then we will have solved most of our troubles. It will not matter if we will have to use the old method of vague description for a small tonnage of abnormal pulps.

To permit everybody to study the tests as they were reported to the committee, it was decided to publish them in the hope that this might induce somebody to invent a better specification method and to improve the testing procedures. Particular attention is called to the table of testing conditions, which shows the wide variations.

In the notes some information of value was copied from the reports.

The data are arranged as follows:

1—Summary of percentage calculations.
2—Percentage figures wherever such calculation was possible.
3—Original data as reported to the committee.
4—Table of testing conditions.
5—Notes.

TABLE I.—SUMMARY OF PERCENTAGE CALCULATIONS

	Min.-Max.	Range	Number of correct tests	Per cent of total
BURST				
Fraser	7 -20	9.1-18.8	15	83.5
Solka	4 -72.2	25.1-54	8	44.5
Dexter	45.3-88	51 -88	16	89
Tom	70.5-77.5	70.5-77.5	18	100
TEAR				
Fraser	.....-....	.....-....	..	.....
Solka	70.3-77.4	70.3-77.4	16	100
Dexter	13.5-45	18.7-36.2	14	87
Tom	10.9-39.5	10.9-23.4	13	81.5
FOLD				
Fraser	27.3-74.5	32.8-71	12	85.7
Solka	.4-82	24.1-55.6	6	50
Dexter	9.1-81.5	40.9-81.1	9	75
Tom	33 -83	52.5-83	11	91.8

TABLE II.—TEST DATA ON PERCENTAGE BASIS

	Kimberly	Appleton	Everett	Marathon	Fraser	Weyerhaeuser	Dill & Collins	Amer. Writing
PULP "A"								
Mullen	16.8	9.1	12.2	10.0	10.0	20.0	18.7	15.9
Tear	...	...	...	...	...	...	...	...
Fold	8.7	...	5.7	2.0	6.5	6.8	3.0	3.0
Freeness	60.4	71.0	27.7	...	70.5	45.3	53.3	41.7
SOLKA								
Mullen	28.4	72.2	68.3	49.4	54.0	65.0	13.6	16.7
Tear	76.0	...	70.3	71.4	76.0	71.4	75.5	77.4
Fold	11.5	...	32.2	82.0	25.5*	47.5	6.1	5.4
Freeness	65.6	48.7	67.5	...	71.5	59.0	67.0	68.2
DEXTER								
Mullen	45.3	86.6	67.5	71.0	74.0	71.0	82.5	64.5
Tear	37.2	...	19.3	45.0	22.7	30.8	27.2	36.0
Fold	18.4	...	78.2	46.6	28.6*	66.0	81.1	81.5
Freeness	45.9	18.5	59.5	...	17.9	55.4	47.8	25.5
PULP "C"								
Mullen	76.0	77.4	70.5	70.6	77.5	70.9	73.6	72.6
Tear	10.9	...	38.6	18.0	11.0	44.6	15.1	20.0
Fold	82.6	...	79.5	33.0	83.0	83.0	53.1	52.5
Freeness	26.5	66.5	23.6	...	51.4	36.5	33.8	22.8

* Tests marked with an asterisk were apparently determined with a testing method different from the one used for Pulps "A" and "C."

	Champion	Oxford	Riegel	Brown	Madison	Hawthorne	Lee	Fox	Mead	Scott
PULP "A"										
Mullen	10.5	9.8	9.4	19.9	10.6	18.8	14.1	12.25	11.8	7.0
Tear	...	17.7	...	...	...	...	...	...	...	...
Fold	4.7	0.5	...	...	9.8	4.0	5.4	...	...	...
Freeness	...	38.0	58.1	74.5	...	...	32.8	27.3	40.0	66.4
SOLKA										
Mullen	4.0	20.9	34.3	18.6	11.0	43.0	29.6	38.6	25.1	23.5
Tear	72.0	73.3	76.0	75.0	72.2	...	76.0	73.8	76.0	76.75
Fold	0.4	55.6	...	...	24.1	55.5	68.5	...	...	...
Freeness	...	48.9	66.0	94.2	...	...	61.4	71.5*	68.2	87.9
DEXTER										
Mullen	76.0	56.0	88.0	72.1	51.0	63.3	64.1	78.0	48.0	70.2
Tear	20.1	26.7	13.5	24.8	26.5	..	30.0	18.7	33.5	36.2
Fold	43.5	40.9	...	...	76.9	9.1	67.1	...	...	...
Freeness	...	67.5	26.2	26.2	...	...	42.9	44.1*	58.9	76.0
PULP "C"										
Mullen	75.9	77.5	76.9	71.0	75.7	75.5	74.0	77.5	75.4	76.2
Tear	23.4	22.0	19.3	20.1	39.5	...	10.9	15.0	16.35	23.25
Fold	83.0	83.0	...	...	74.0	80.5	79.6	...	...	...
Freeness	...	23.6	27.9	21.0	...	...	57.0	17.8	22.8	26.5

* Tests marked with an asterisk were apparently determined with a testing method different from the one used for Pulps "A" and "C."

TABLE IIIA-W—ORIGINAL DATA AS REPORTED TO THE COMMITTEE

TABLE III-A.—KIMBERLY CLARK CORPORATION
DEXTER "A" BLEACHED MITSCHERLICH

Run No. 372
From Dexter Sulphite & Paper Company, Dexter, N. Y.

		Strength	Freeness	Fold	Tear
no wts.	10 min.	9.2	790	2	66
8 pounds	5 min.	16.4		15	117
8 pounds	10 min.	23.9	780	36	82
8 pounds	15 min.	30.2		120	83
8 pounds	20 min.	34.5	750	199	65
8 pounds	30 min.	40.6			
8 pounds	40 min.	43.4	635	660	41
8 pounds	50 min.	45.6			
8 pounds	60 min.	46.4	470	753	37
8 pounds	70 min.	45.4			
8 pounds	80 min.	40.1	290	756	48

SOLKA NO. 1 REGULAR ALPHA

Run No. 373
From Brown Company, Portland, Maine.

		Strength	Freeness	Fold	Tear
no wts.	10 min.	9.0	780	1	88
8 pounds	5 min.	13.0		3	95
8 pounds	10 min.	17.8	775	9	116
8 pounds	15 min.	21.1		20	116
8 pounds	20 min.	25.3	760	32	139
8 pounds	30 min.	33.1			
8 pounds	40 min.	38.0	700	210	119
8 pounds	50 min.	40.4			
8 pounds	60 min.	43.7	640	766	123
8 pounds	70 min.	45.5			
8 pounds	80 min.	47.4	545	906	99
8 pounds	90 min.	46.3			
8 pounds	100 min.	45.9	445	1007	104

TABLE III-B.—INSTITUTE OF PAPER CHEMISTRY
DEXTER "A" BLEACHED MITSCHERLICH

Strength Data

Time	5" x 5" Wt. of Sheet	Pop Test 1	2	3	4	5	6	Ave.	% Ratio	Freeness
0	2.016	29	34	32	29	31	..	31	35.1	850
15	1.941	76	86	78	86	77	..	80	94.2	705
30	1.957	83	93	89	96	91	..	90	104.8	390
45	1.936	90	81	80	74	91	91	84	99.6	230
60	2.052	87	88	83	87	87	..	86	97.7	155

Fold Data—M. I. T. Fold Tester

Time	5" x 5" Wt. of Sheet	Double Folds 1	2	3	4	5	6	Ave.	Basis Wt.	Fold Factor
0	2.070	27	41	17	27	24	..	27	....	....
15	1.988	1188	1336	825	947	1571	..	1174	....	....
30	1.996	2439	2202	1216	1578	1883	..	1864	....	....
45	2.089	2856	1083	1106	2241	4038	..	2265	....	....
60	2.119	2118	3046	2177	1762	1922	..	2225	....	....

Tear Data

Time	5" x 5" Wt. of Sheet	Tear 16 Sheets 1	2	3	4	5	6	Ave.	Basis Wt.	Tear Factor
0	2.188	172	172	164	....	....	..	169	96.2	176
15	1.993	108	116	112	....	....	..	112	87.8	127
30	2.052	108	108	108	....	....	..	108	90.4	119
45	2.101	80	76	80	....	....	..	78	92.5	85
60	2.197	76	80	76	....	....	..	77	96.6	79

SOLKA NO. 1 REGULAR ALPHA

Strength Data

Time	5" x 5" Wt. of Sheet	Pop Test 1	2	3	4	5	6	Ave.	% Ratio	Freeness
0	1.929	21	23	23	23	23	..	22.6	26.6	840
15	1.989	63	64	64	66	69	..	65.2	74.4	780
30	2.077	82	81	83	91	81	83	83.5	91.3	645
45	1.991	86	83	80	85	83	..	83.6	94.8	475
60	2.061	87	89	87	83	79	88	85.5	94.1	350
75	2.177	71	67	82	81	69	78	73.1	76.5	245
90	2.151	70	75	71	81	79	76	75.3	79.4	190
105	2.254	69	76	73	73	71	74	72.6	73.4	150

Fold Data—M. I. T. Fold Tester

Time	5" x 5" Wt. of Sheet	Double Folds 1	2	3	4	5	6	Ave.	Basis Wt.	Fold Factor
0	2.047	10	17	20	21	20	17	18	....	....
15	2.083	1601	670	701	1050	1788	..	1404	....	....
30	2.081	1172	1106	1438	954	1163	..	1167	....	....
45	1.996	837	1084	1194	984	2067	..	1233	....	....
60	2.081	1271	1908	1372	1245	1463	..	1452	....	....
75	2.185	1456	3219	2131	1703	3662	..	2434	....	....
90	2.238	1554	2765	3688	937	1783	..	2145	....	....
105	2.333	5798	3583	8442	8488	5693	..	6401	....	....

Tear Data—Elmendorf

Time	5" x 5" Wt. of Sheet	Tear 16 Sheets 1	2	3	4	5	6	Ave.	Basis Wt.	Tear Factor
0	2.088	260	204	224	....	....	..	229	91.9	249
15	2.159	224	228	216	....	....	..	222	94.9	235
30	2.087	168	180	172	....	....	..	173	91.9	188
45	2.110	156	152	144	....	....	..	150	92.9	162
60	2.139	152	144	136	....	....	..	144	94.0	152
75	2.190	128	128	120	....	....	..	125	96.4	130
90	2.355	116	116	116	....	....	..	116	103.5	112
105	2.368	104	100	104	....	....	..	102	104.2	98

TABLE III-C.—SOUNDVIEW PULP COMPANY
DEXTER "A" BLEACHED MITSCHERLICH

Minutes Beating Time	Mullen Sheet Wt.	Mullen Ratio	Tear Sheet Wt.	Tear Ratio	Fold Sheet Wt.	Fold Ratio	Freeness, c.c. Schopper-Riegler
5	80.6	54	81.7	247	79.9	632	850
20	81.8	86	82.6	190	80.4	4170	...
35	82.8	98	80.6	166	78.7	4495	780
50	80.4	106	78.6	163	79.5	4350	720
65	80.4	116	78.0	149	78.2	4020	660
80	79.9	113	78.6	145	78.1	3500	...

SOLKA NO. 1 REGULAR ALPHA

Minutes Beating Time	Mullen Sheet Wt.	Mullen Ratio	Tear Sheet Wt.	Tear Ratio	Fold Sheet Wt.	Fold Ratio	Freeness, c.c. Schopper-Riegler
5	82.2	43	82.0	310	81.8	105	850
20	81.4	72	81.5	275	82.2	2850	...
35	81.2	95	80.2	252	81.8	6560	800
50	83.0	110	...	...	80.9	7980	...
65	81.3	114	79.4	228	80.4	9780	730
80	81.2	120	...	...	....	....	...
95	83.3	123	78.6	199	79.0	9470	650

TABLE III-D.—MARATHON PAPER MILLS COMPANY
DEXTER "A" BLEACHED MITSCHERLICH

Beating time, minutes.....	30	40	50	60	70
Basis weight (24x36—480).	66.3	66.3	66.3	66.3	...
(25x40—500).	80	80	80	80	...
Mullen strength, points....	83	87	91	93	...
Per cent Mullen					
(24x36—480)	125	131	138	140	...
(25x40—500)	104	109	114	116	...
Tear—Elmendorf	108	93	94	104	...
Fold—Schopper	1589	1905	1777	1977	...
Freeness (ave. 4 tests)....	72	67	45	24	...

SOLKA NO. 1 REGULAR ALPHA

Beating time, minutes.....	30	40	50	60	70
Basis weight (24x36—480).	66.3	66.3	66.3	66.3	66.3
(25x40—500).	80	80	80	80	80
Mullen strength, points....	67	76	78	81	84
Per cent Mullen					
(24x36—480)	101	115	117	122	127
(25x40—500)	84	95	97	101	105
Tear—Elmendorf	171	161	149	135	152
Fold—Schopper	2531	2981	2477	2683	2758
Freeness (ave. 4 tests)....	76	61	41	35	26

All tests made at 70 deg. F. and 50 per cent relative humidity.

TABLE III-E.—RESTIGOUCHE COMPANY, LTD.
DEXTER "A" BLEACHED MITSCHERLICH

	Mullen	Tear	Bulk	Freeness	Fold
Unbeaten	32	195	69	631	....
Beaten 20 min.....	68	130	68	550	1051
40 min.....	81	104	64	390	1489
60 min.....	91	89	63	243	2651
80 min.....	87	85	60	140	2272
100 min.....	77	76	58	80	2061

SOLKA NO. 1 REGULAR ALPHA

	Mullen	Tear	Bulk	Freeness	Fold
Unbeaten 23	214	78	635	....
Beaten 20 min.....	52	215	77	581	472
40 min.....	63	187	74	517	1070
60 min.....	67	170	72	443	1670
80 min.....	73	155	70	386	2348
100 min.....	75	141	68	314	3011
120 min.....	77	126	65	237	2812
140 min.....	76	117	64	165	2250

TABLE III-F.—WEYERHAEUSER TIMBER COMPANY
DEXTER "A" BLEACHED MITSCHERLICH

Maximum pop	127 per cent A.D. basis
Minutes to max. pop	80
Tear at 70 min.	1.70 65 per cent R.H.
Fold at 70 min.	76.0 65 per cent R.H.
Freeness at 70 min.	700

SOLKA NO. 1 REGULAR ALPHA

Maximum pop	121 per cent A.D. basis
Minutes to max. pop	70
Tear at 70 min.	2.50 65 per cent R.H.
Fold at 70 min.	94.0 65 per cent R.H.
Freeness at 70 min.	710

TABLE III-G.—INTERNATIONAL PAPER COMPANY
DEXTER "A" BLEACHED MITSCHERLICH

Time of beating	Basis weight	Mullen	Tear	M.I.T. fold tester Fold (1 kg. wt.)
Initial	107.2	20.5	129.0	6.7
20 min.	98.2	77.3	176.1	902
40 min.	97.3	94.3	175.0	2683
60 min.	98.2	101.7	157.9	2915

Mullen, tear and fold tests were made at constant relative humidity of 65 per cent and 75 deg. F.

SOLKA NO. 1 REGULAR ALPHA

Beating time	Basis weight	Freeness	Mullen	Tear	Fold
Initial	108.2	657	22.2	135.7	13
20 min.	90.3	548	59.1	227.9	334
40 min.	88.3	442	80.1	197.5	2457
60 min.	82.2	317	77.9	161.1	1557
80 min.	88.7	215	87.4	162.4	1907

TABLE III-H.—DILL & COLLINS, INC.
DEXTER "A" BLEACHED MITSCHERLICH

Beating time	22.5 mins.	45 mins.	67.5 mins.	90 mins.
Mullen ratio	74.3	96.9	108.7	118.1
Tear ratio	148	118.5	106.5	110.0
Schopper folding ratio.....	1980	3400	4145	5430
Freeness	845	810	750	545

SOLKA NO. 1 REGULAR ALPHA

Beating time	22.5 mins.	45 mins.	67.5 mins.	90 mins.
Mullen ratio	30.4	44.3	56.7	70.0
Tear ratio	240	281	271	254
Schopper folding ratio.....	33.3	117	633	2130
Freeness	860	845	835	805

TABLE III-I.—AMERICAN WRITING PAPER COMPANY
DEXTER "A" BLEACHED MITSCHERLICH

Minutes	Mullen (lbs.)	Tear (gms.)	Folds, double	Freeness, 70°F., .2% consistency	(25x40—500 wt.), pounds	TAPPI Std. Mullen ratio	TAPPI Std. Tear ratio	TAPPI Std. Fold ratio
Unbeaten	30.5	156	25	845	94	32.4	166	26.6
30 min.	63.5	206.4	4377	805	90	70.5	229	4850
60 min.	88.8	168.8	5227	695	94	94.5	180	5555
90 min.	94.3	142.4	6132	460	90	105	158	6800
120 min.	102.1	138.4	4719	270	94	108	147	5020

SOLKA NO. 1 REGULAR ALPHA

Minutes	Mullen (lbs.)	Tear (gms.)	Folds, double	Freeness, 70°F., .2% consistency	(25x40—500 wt.), pounds	TAPPI Std. Mullen ratio	TAPPI Std. Tear ratio	TAPPI Std. Fold ratio
Unbeaten	19.9	128.8	2	850	102	19.5	126	6.8
30 min.	25.4	216.8	22	850	94	27.0	231	23.4
60 min.	41.0	284.8	188	800	98	42	290	192
90 min.	53.8	272	682	750	94	57.2	290	725
120 min.	61	265.6	2999	645	94	65.0	282	3190
150 min.	72	232	4615	535	92	78	252	5000
180 min.	74	212	3772	435	92	80.5	230	4100

TABLE III-J.—ALLIANCE PAPER MILLS, LTD.
DEXTER "A" BLEACHED MITSCHERLICH

Time minutes	Slowness Canadian cc.	Slowness Brown secs.	Mullen per cent	Tear grams/ream weight	Total
0					
60	525	8	71.5	139.5	211.0
90	500	8	82.4	135.5	217.9
120	440	9	95.2	109.0	204.2
150	435	9	99.2	112.0	211.2
Ave. 105	475	8½	87.1	124.0	211.1

SOLKA NO. 1 REGULAR ALPHA

Time hours	Slowness Canadian cc.	Slowness Brown secs.	Mullen per cent	Tear grams/ream weight	Total
1	478	8	44.5	278.0	322.5
2	508	8	68.5	210.5	279.0
3	408	9	78.5	168.1	246.6
4	344	10	85.3	155.6	240.9
Ave. 2.5	459.5	8¾	69.2	203.1	272.3

TABLE III-K.—NEW YORK STATE COLLEGE OF FORESTRY
DEXTER "A" BLEACHED MITSCHERLICH

Milling time, mins.	Basis weight lbs.	Freeness c.c.	Bursting strength lbs./sq. in.	Bursting strength % pts.	Tearing strength 16 sheets gms.	Tearing strength 16 sheets % pts.	Folding strength, double folds
10	81.5	590	49.9	61.2	190	233	506
20	78.3	560	51.5	65.8	141	181	925
40	75.1	420	73.0	97.0	108	144	3077
60	83.1	220	84.9	102.0	116	139	4627

SOLKA NO. 1 REGULAR ALPHA

Milling time, mins.	Basis weight lbs.	Freeness c.c.	Bursting strength lbs./sq. in.	Bursting strength % pts.	Tearing strength gms.	Tearing strength % pts.	Folding strength, double folds
10	80.2	630	15.9	19.8	187	233	12
20	73.5	610	24.0	32.6	221	301	36
40	78.5	560	35.8	45.6	238	303	182
60	82.8	425	44.6	54.5	231	279	717
100	75.2	310	53.5	71.1	158	209	2199

TABLE III-L.—HAMMERMILL PAPER COMPANY

DEXTER "A" BLEACHED MITSCHERLICH

Rev. beaten	Per cent slowness	Actual weight of sheets 25x40—500	Actual Mullen	Fold	Tear
2700	32.4	82.0	72	1653	126
3000	36.0	80.1	73	1221	110
3300	38.6	79.0	70	1309	107
3600	41.8	81.0	80	1500	104
3900	45.9	81.0	82	1600	106

SOLKA NO. 1 REGULAR ALPHA

Rev. beaten	Per cent slowness	Actual weight of sheets 25x40—500	Actual Mullen	Fold	Tear
6000	36.5	82.9	52	1640	186
7200	43.3	83.7	58	1950	184
8400	51.6	82.0	62	1891	173
9600	60.0	80.6	66	2158	156

Tests made at 50 per cent relative humidity at 70 deg. F.

TABLE III-M.—CHAMPION FIBRE COMPANY

6054A—DEXTER "A" BLEACHED MITSCHERLICH
6054B—SOLKA NO. 1 REGULAR ALPHA

Ball Mill Period		Min. Rev.	60 3600	100 6000	140 8400	180 10800	220 13260
Pop		6054-A	83	100	103	107	105
		6054-B	28	35	45	51	68
Fold		6054-A	51	59	84	77	48
		6054-B	.39	1.0	4.3	6.4	62.1
Tear		6054-A	2.3	2.2	1.8	1.6	1.3
		6054-B	2.7	2.9	3.6	3.3	3.0
Freeness		6054-A	540	480	280	145	40
		6054-B	575	570	505	430	295

TABLE III-N.—OXFORD PAPER COMPANY

DEXTER "A" BLEACHED MITSCHERLICH

Milling time	Bursting strength, per cent points	Tearing strength, per cent points	Folding strength, double folds	Density, pounds per point	Freeness, c.c.	Opacity, ck.	Shrinkage, per cent
0 min.	30	197	7	10.3	870	.882	3.2
10 min.	52	201	38	10.4	860	.851	4.7
20 min.	52	194	55	10.9	820	.864	5.5
40 min.	82	157	350	11.6	710	.788	7.1
100 min.	118	115	2070	13.7	450	.581	15.0

Institute Paper Chemistry Brightness 75.1.

SOLKA NO. 1 REGULAR ALPHA

Milling time	Bursting strength, per cent points	Tearing strength, per cent points	Folding strength, double folds	Density, pounds per point	Freeness, c.c.	Opacity, ck.	Shrinkage, per cent
0 min.	23	224	8	8.8	760	.877	5.5
10 min.	26	239	9	8.4	750	.888	6.3
20 min.	35	295	17	8.9	720	.873	7.9
40 min.	43	295	45	9.6	690	.848	9.5
100 min.	78	267	262	10.9	360	.822	12.7

Institute Paper Chemistry Brightness 84.7.

TABLE III-O.—RIEGEL PAPER CORPORATION

DEXTER "A" BLEACHED MITSCHERLICH

Minutes	Slowness	Mullen	Tear	Folds
0	720	...	...	...
30	620	31.9	62	172
60	490	40.1	41	517
90	300	43.6	36	648
120	170	44.8	30	602

SOLKA NO. 1 REGULAR ALPHA

Minutes	Slowness	Mullen	Tear	Folds
0	730	...	...	...
30	650	13.7	113	20
60	580	23.4	101	92
90	470	28.5	78	207
120	330	26.4	57	204

TABLE III-P.—BROWN COMPANY

DEXTER "A" BLEACHED MITSCHERLICH

	Unbeaten	20 min.	40 min.	60 min.
Slowness factor	1.5	3.95	10.3	29.5
Mullen (per cent pts. per lb.)	61	108	133	141
Tear (per cent grams per lb.)	150	169	181	138
No. double folds (Schopper)	9	559	1356	2155

Per cent pts. per lb. calculated on 480—24x36 basis. Slowness factor is reciprocal of freeness and is measured by minutes of time for given amount of water to drain from beaten pulp.

SOLKA NO. 1 REGULAR ALPHA

	Unbeaten	50 min.	100 min.	150 min.
Slowness factor	1.8	5.95	20.8	80.0
Mullen (per cent pts. per lb.)	50	87	106	118
Tear (per cent grams per lb.)	180	272	258	234
No. double folds (Schopper)	5	353	1675	2553

TABLE III-Q.—FOREST PRODUCTS LABORATORY, MADISON, WIS.

SOLKA NO. 1 REGULAR ALPHA

Time in pebble mill, minutes	0		20		40		60		80		100	
Sheet No.	1	2	1	2	1	2	1	2	1	2	1	2
Bursting Strength												
Ream weight * (25x40—500)	87.55	86.61	78.42	85.51	91.33	89.13	87.55	88.18	84.09	86.61	87.55	85.03
Freeness, Green FPL Meth. No. 9211, c.c.	660		520		448		333		229		197	
Schopper-Riegler Meth. No. 9231, c.c.	874		839		812		762		638		597	
Mullen points per lb. per ream (25x40—500)	0.11	0.12	0.29	0.29	0.39	0.42	0.55	0.57	0.60	0.67	0.70	0.69
Tearing Strength												
Tear, grams per lb. per ream (25x40—500)	1.45		2.38		2.89		2.61		2.47		2.45	
Tensile Strength												
Breaking length in meters	724		1950		2437		3150		3972		4170	
Stretch, per cent	5.75		7.37		8.50		9.75		11.75		9.50	
Solid fraction (ream weight/caliper) × .0427	.37		.45		.51		.57		.62		.62	
Average number of double folds	3		67		486		1594		2480		2863	

* Consistence of all pulp suspensions used for making test sheets was approximately 0.16 per cent.

DEXTER "A" BLEACHED MITSCHERLICH

Time in pebble mill, minutes	0		20		40		60		80		100	
Sheet No.	1	2	1	2	1	2	1	2	1	2	1	2
Bursting Strength												
Ream weight * (25x40—500)	89.76	87.24	91.65	90.07	85.98	87.55	86.61	86.92	88.29	90.70	86.61	86.61
Freeness, Green FPL Meth. No. 9211, c.c.	641		459		297		147		69		51	
Schopper-Riegler Meth. No. 9231, c.c.	869		817		712		511		335		313	
Mullen points per lb. per ream (25x40—500)	00.14	0.14	0.59	0.54	0.77	0.81	0.91	0.92	1.00	1.01	1.01	1.02
Tearing Strength												
Tear, grams per lb. per ream (25x40—500)	1.23		1.93		1.76		1.56		1.43		1.40	
Tensile Strength												
Breaking length in meters	1032		3890		4987		5945		6872		6412	
Stretch, per cent	5.25		9.75		7.37		7.62		7.00		6.50	
Solid fraction (ream weight/caliper) × .0427	.42		.59		.68		.73		.78		.81	
Average number of double folds	3.5		1814		2041		2039		2567		2010	

* Consistence of all pulp suspensions used for making test sheets was approximately 0.16 per cent.

TABLE III-R.—HAWTHORNE PAPER COMPANY
DEXTER "A" BLEACHED MITSCHERLICH

Minutes beating	Per cent Freeness	Points per pound	Fold	Color	Dirt 1 speck per grms. of pulp
60	50.	1.51	717.80	Good	Dirty
120	25.	2.07	657.10		
180	17.	2.17	380.		
240	12.	2.40	317.		

17x22—500—31.61 pounds.

SOLKA NO. 1 REGULAR ALPHA

Minutes beating	Per cent Freeness	Points per pound	Fold	Color	Dirt 1 speck per grms. of pulp
60	60.	1.28	74.90	Good	30.
120	40.	1.64	2487.		
180	28.	1.75	2426.80		
240	20.	1.97	1453.40		
300	17.	2.10	1226.		
360	16.	2.07	1299.10		

17x22—500—31.25 pounds.

TABLE III-S.—EASTERN MANUFACTURING COMPANY
DEXTER "A" BLEACHED MITSCHERLICH

Beating time—hours	½	1	1½	2	
Freeness, c.c.	665	650	635	620	
Mullen, per cent	59	64.5	67	67	
Tear, ratio grms. to wt.	2.57	2.71	2.79	2.79	
Beater value	1.88	2.01	2.07	2.07	
Average beater value					2.01
Folding endurance	165	225	295	395	

SOLKA NO. 1 REGULAR ALPHA

Beating time—hours	½	1	1½	2	
Freeness, c.c.	660	642	622	601	
Mullen, per cent	35	38	40	42.5	
Tear, ratio grms. to wt.	2.90	3.05	3.25	3.50	
Beater value	1.80	1.91	2.03	2.18	
Average beater value					1.98
Folding endurance	25	50	57	42	

TABLE IV-A.—DATA ON TESTING EQUIPMENT AND PROCEDURE

"A" BALL MILLS

Name of Laboratory	Type Mill	Dimensions inside	Material of jar	Number of balls	Pebble Charge: Volume	Pebble Charge: Weight, gr.	Material	Weight of pulp bone dry
Champion	Type T Size C	10" diam. 13.5" depth	Porcelain	100 1" to 1¼" dia.	2000 c.c.	5450	Flint	150 gr.
American	Type T Size C	10" diam. 13.5" depth	Porcelain	...	1780	4500	....	90
Dill & Collins	Type T Size C	10" diam. 13.0" length	Porcelain	91	....	4200	Flint	90
Syracuse	Type T Size C	10" diam. 13" depth	Porcelain	72	....	4540	Flint	90
Alliance	Abbe Engineer Co. 4 Jar	8½" diam. 9½" depth	Porcelain	240	....	2600	Flint	32.4
Oxford	.....	.....	Porcelain	75	....	4540	Flint	90
Madison	.....	16 L content	.....	125	1780	5000	Flint	90
Hammermill	Abbe Double Domestic	15.15 L content	.....	75	....	4414	Flint	90
Brown	Abbe Mill	.....	.....	...	....	....	....	...
Hawthorne	Abbe	.....	.....	...	....	....	....	....
Riegel	Type C	.....	.....	...	....	6800	....	100

Name of Laboratory	Preliminary Disintegration: Volume of water, c.c.	Consistency	Speed of rotation	Consistency	Time minutes	Rev.	Sheet Machine: Type	Size	Backing wire	Top wire
Champion	4250	3.53%	60	2%	15	1800	Date	8"x8"	15	65
American	2000	4.5	52	...	..	...	Date	8"x8"	..	..
Dill & Collins	2000	4.5	56	1.5%	15	Lightnin. 1750	Williams	8"x8"	14	80
Syracuse	2000	4.5	60	1%	5	TAPPI Stand.	Williams	8"x8"	14	60
Alliance	2900	1.115	60	...	..	....	Date	.....	..	..
Oxford	3000	3.0	60	...	..	....	Valley	.....	..	..
Madison	2000	4.5	66	5%	..	....	Madison	7"x9"	..	100
Hammermill	2000	4.5	56	...	..	....	Williams	.....	..	..
Brown	....	...	..	...	..	....	Cyl.	6"	..	..
Hawthorne	.....	...	..	...	..	....	.....	.....	..	..
Riegel	5000	2.0	70	...	..	....	Valley	.....	..	..

Name of Laboratory	Drain Pipe: Diameter	Drain Pipe: Length	Stirring after Beating: Consistency per cent	Stirring after Beating: Time minutes	Sheet Forming: Consistency per cent	Sheet Forming: Volume c.c.	Couching: Material	Couching: Method	Pressing: Pounds per square inch	Pressing: Time minutes
Champion	1"	34"	0.15	1	0.15	680	Felts	Rocker	300	..
American	..	...	...	...	...	...	Felts	.....	75	5
Dill & Collins	2"	38"	6.1	15	0.225	1750	Felts	Roll	180	3
Syracuse	..	...	0.41	5	0.41	800	New wet press felts	Rocker	200	5
Alliance	..	...	...	..	0.0477	1134	Felt	Rocker	?	..
Oxford	..	...	...	..	0.5	700	Felt	.....	200	2
Madison	..	52"	0.78	3	0.16	440	Wet mimeo	.....	...	..
Hammermill	..	...	0.401	10	...	...	Blotters	.....	50	2
Brown	..	...	...	..	0.18	...	Felt	.....	One ton dead weight	
Hawthorne	..	...	...	..	0.4	...	Felt	Roll	No pressing	
Riegel	..	...	...	..	...	...	.....	.....	100	2

Name of Laboratory	Drying Method		Testing: Relative humidity	Testing: Temperature	Testing: Condition	Freeness Testing: Method	Freeness Testing: Temperature	Freeness Testing: Consistency
Champion	Wire tray	Air 70° F.—between felts	65%	.....	..	Canadian	20%	0.30%
American	On board	Air 120° F.—12 hrs.	65	70° F.	..	Schopper	2	0.3
Dill & Collins	British rings	Air 35° C.—Free 20 mins.	50	70° F.	2	Schopper	25° C.	0.2
Syracuse	Williams	.....	65	75° F.	4	Green	25° C.	0.3
Alliance	Steam rotary	... 200° F.	65	.....	..	Canadian	20° C.	0.25
Oxford	Steam pipe	... 185° F.	50	70° F.	2	Green	20° C.	0.3
Madison	Oven	Air 65° C.—Mimeo 4 hrs.	65	72° F.	16	Schopper	20° C.	0.2
Hammermill	Oven	Air 70° C.—Blotters	50	70° F.	..	Canadian	20° C.	0.4
Brown	.....	.....	..	.....	..	Green	.....	...
Hawthorne	Oven	Air 190° F.—Felts	55	84° F.	..	Fish	20° C.	0.1
Riegel	.....	.....	..	.....	..	Own	85° F.	0.4
						.....	.....	...

Name of Laboratory	Basis weight of sheets 25x40 (500)	Drainage time for one sheet	Fold tester
Champion	80 lbs.	.....	Schopper
American	.....	.....	Schopper
Dill & Collins	70	2.5 secs.	Schopper
Syracuse	80	2.5 secs.	Schopper
Alliance	.....	.....	No folds
Oxford	66.5	.....	M. I. T.
Madison	.....	.....	Schopper
Hammermill	53.4	.....	Schopper
Brown	84	.....	Schopper
Hawthorne	80	.....	Schopper
Riegel	.....	.....	.....

TABLE IV-B.—TESTING EQUIPMENT AND PROCEDURE

"B"—NIAGARA BEATER

	Beater size	Type	Roll speed r.p.m.	Weight on adjustable bed plate	Consistency during beating bone dry	Distintegrator	Sheet Forming: Sheet mould	Sheet Forming: Wire	Sheet Forming: Consistency
International	1½	Niagara Bronze	510	25.0 lbs.	2.00%	.....	Valley	.....	0.10%
Marathon	320 grms.	Niagara	435	13.4	1.7	.....	Valley	.....	0.0667
Restigouche	454 grms. bone dry	Niagara	...	6.6	.....	Lightnin 1 inch 3 blade	Date 8"x8"	.....	.....
Soundview	.....	Niagara	T 200	Method	.....	.....	Williams 8"x8"	.....	0.08
Kimberley	1½ lbs.	Niagara	...	.....	.....	.....	Valley	.....	0.567
Institute	1½ lbs.	Niagara	...	18	1.94	.....	Valley	.....	.....
Weyerhaeuser	1¼ lbs.	Niagara Monel	465	27	2.85	.....	Appleton 6½"x6½"	70 mesh monel	.....
OTHER BEATERS									
Eastern	6 lbs.	.....	...	.....	.....	.....	.....	.....	0.09
Fox	10 lbs.	Valley	450	Yes	4	Own	Valley	80	0.065
Lee	2 lbs.	Valley	...	.....	.....	.....	.....	.....	0.75

	Pressing: Couching: Material	Pressing: Couching: Method	Pressing: Pressure lbs./sq. in.	Pressing: Time minutes	Drying: Method	Drying: Temp.	Drying: Duration	Basis weight of test sheets 25x40 (500)
International	Blotters	22 lb. roll	100	1	Steam dryer	.....	Few minutes	90
Marathon	Felt	roll	100	5 sec.	Steam dryer	.....	Few minutes	57
Restigouche	Felt	rocker	200	5	Oven	180° F.	1½ hours	80
Soundview	.....	21 lb. roll	50	4	Drying rings	30° C.	1 hour	80
Kimberley	Felt	roll	100	..	.....	.....	.....	80
Institute	Felt	roll	100	1	Valley	.....	10 minutes	44
Weyerhaeuser	Felt	26½ lb. roll	100	½	Valley	106° C.	.....	80
OTHER BEATERS								
Eastern	.....	.....	250	..	Blotters	80° F.	.....	72
Fox	Felt	.....	100	1	Valley	4	.....	80
Lee	Felt	roll	hand press	..	.....	.....	.....	50

	Testing: Rel. Hum.	Testing: Temp.	Testing: Condition, Hours	Testing: Fold Tester	Freeness Testing: Method	Freeness Testing: Consistency	Freeness Testing: Temperature
International	65%	75°	...	M. I. T.	Canadian	0.3%	20° C.
Marathon	50%	70° F.	...	Schopper	Williams 1924	0.5%	70° F.
Restigouche	65%	.....	1	M. I. T.	Canadian	0.3%	20° C.
Soundview	65%	.....	..	Schopper	Schopper	0.2%	20° C.
Kimberley	50%	70° F.	2	Schopper	Schopper	0.3%	20° C.
Institute	65%	70° F.	6	M. I. T.	Schopper	0.2%	20° C.
Weyerhaeuser	65%	70° F.	2½	Schopper	Schopper	0.2%	21° C.
OTHER BEATERS							
Eastern	65%	.....	...	.....	Canadian	0.3%	20° C.
Fox	.....	.....	...	M. I. T.	Own	0.2%	25° C.
Lee	55%	70° F.	...	.....	Green	0.3%	70° F.

TABLE III-T.—FOX RIVER PAPER COMPANY
DEXTER "A" BLEACHED MITSCHERLICH

Beating time, mins.	Temp. of stock in beater (Cent.)	Slowness	Temp. of 2% cons. of stock for Slowness	Mullen: Ave. wt.	Mullen: Ave. Mullen	Tear: Ave. wt.	Tear: Ave. tear	Fold: Ave. wt.	Fold: Ave. fold
20	31	850	28	80.1	33.7	79.6	160	80.2	110
40	32	790	28	80.8	52.9	80.5	144	80.4	380
60	34	680	28	80.1	57.6	80.2	114	80.0	483
80	35	610	28	78.9	58.5	79.3	100	80.0	431

SOLKA NO. 1 REGULAR ALPHA

Beating time, mins.	Temp. of stock in beater (Cent.)	Slowness	Temp. of 2% cons. of stock for Slowness	Mullen: Ave. wt.	Mullen: Ave. Mullen	Tear: Ave. wt.	Tear: Ave. tear	Fold: Ave. wt.	Fold: Ave. fold
40	30	830	25	82	35.5	85.2	254.4	81.8	83
60	33	790	25	82.4	46.7	80.9	222.4	78.8	237
80	34	730	25	79.6	50.8	78.9	189.6	80.6	234
100	36	640	25	80.3	50.6	80.0	168.8	80.2	250
120	37	560	25	80	52.0	78.6	147.2	79.3	245
140	38	470	25	81	53.1	80.0	140.0	80.6	304

The basis weight used is 25x40—500.

TABLE III-U.—LEE PAPER COMPANY
DEXTER "A" BLEACHED MITSCHERLICH

Beating time in hours	Mullen	Tear	Fold	Freeness
1	40	77	950	380
2	47	72	1400	280
3	55	70	1700	190
4	59	68	1750	130

pH—4.7

Water temperature at furnish 17 deg. C.
Roll setting 18 turns.

SOLKA NO. 1 REGULAR ALPHA

Beating time in hours	Mullen	Tear	Fold	Freeness
1	27.5	124	490	350
2	34	118	1300	290
3	38	112	1850	240
4	44	109	2300	210

TABLE III-V.—THE MEAD CORPORATION
TESTS IN THE REFINER
DEXTER "A" BLEACHED MITSCHERLICH

Refining time	Elmendorf	Mullen	Value	Freeness
0	252.0	55.8	88.0	540 c.c.
1½ mins.	203.0	92.6	84.5	480 c.c.
3 mins.	179.5	110.0	82.7	400 c.c.
4½ mins.	208.0	115.0	92.4	360 c.c.
6 mins.	185.0	122.2	87.8	325 c.c.
7½ mins.	161.2	123.0	81.4	310 c.c.
9 mins.	172.0	122.5	84.2	290 c.c.
	Brightness = 85.3			

SOLKA NO. 1 REGULAR ALPHA

Refining time	Elmendorf	Mullen	Value	Freeness
0	338.0	31.4	105.3	555 c.c.
1½ mins.	312.5	70.4	109.0	510 c.c.
3 mins.	286.5	85.1	106.0	465 c.c.
4½ mins.	274.0	98.8	106.3	425 c.c.
6 mins.	280.2	97.8	108.0	410 c.c.
7½ mins.	254.0	102.3	102.0	395 c.c.
9 mins.	218.5	105.0	92.5	320 c.c.
	Brightness = 90.6			

TABLE III-W.—SCOTT PAPER COMPANY
TESTS IN KOLLERGANG
DEXTER "A" BLEACHED MITSCHERLICH

Beating expressed as revolutions per gram of pulp tested	Burst factor gms./cm.² gms./m.²	Tear factor gms. gms./m.²	Tensile breaking length in meters	Freeness Canadian tester approx. figures	Drainage time seconds (actual)	Apparent specific gravity
0	20.0	176	3100	700	4.0	0.56
2.5	28.0	125	4500	670	4.0	0.62
5	30.6	100	5250	620	4.2	0.66
10	31.0	80	5700	550	4.6	0.70
20	30.4	66	5950	480	5.4	0.74
40	29.0	59	5750	220	8.6	0.78
80	27.0	55	5500	100	21.0	0.81

SOLKA NO. 1 REGULAR ALPHA

Beating expressed as revolutions per gram of pulp tested	Burst factor gms./cm.² gms./m.²	Tear factor gms. gms./m.²	Tensile breaking length in meters	Freeness Canadian tester approx. figures	Drainage time seconds (actual)	Apparent specific gravity
0	12.0	165	1500	700	4.0	0.49
2.5	15.2	180	2100	630	4.0	0.534
5.0	17.2	178	2750	580	4.2	0.57
10	19.1	150	3400	500	4.4	0.61
20	19.2	90	3900	450	5.0	0.65
40	16.2	63	....	350	6.4	0.69

TABLE V.—COMPARISON OF FREENESS TESTS

A. FOX RIVER COMPANY

Lab. Tester	Standard Tester Schopper Riegler
780	850
610	820
520	740
380	710
240	560
180	450

B. ALLIANCE PAPER COMPANY

Canadian Freeness Tester			Brown Company (Fish) Tester
578	cc equal	to	8 sec.
525	cc equal	to	8 sec.
508	cc equal	to	8 sec.
500	cc equal	to	8 sec.
440	cc equal	to	9 sec.
435	cc equal	to	9 sec.
408	cc equal	to	9 sec.
344	cc equal	to	10 sec.

Notes on Laboratory Procedure

(1) The *disintegrator used by Champion Fibre Company* has 8 projections one inch long and 3/16" in diameter mounted on a control shaft.

(2) *Supporting grid in Date sheet machine used by Champion Fibre;* ¼ inch plate with ¼ inch openings, 2½ to the inch; grid bevelled between openings.

(3) *Method of sheet forming at New York State College of Forestry:* Fill sheet mould with water, add stock and stir by passing the grid up and down slowly three times. Sheets are couched on new wet press felts without nap on side next to sheet.

(4) Freeness Tests made at Alliance with the Brown Company (Fish) tester at a stock consistency of 0.055 per cent air dry.

(5) *Couching in Madison Laboratory:* The wet sheet was covered with a wet sheet of mimeograph paper (20 pounds—17 x 22—500) which in turn was covered with a wet blotter (C. P. Photographic White 140 pounds Government specifications). A sheet of hard copper 0.023 x 7 x 9 inches was placed on the blotter and couching was accomplished by rolling a 3 x 10½ inches bronze roll weighing 19 pounds across the copper plate twice as a dead weight. After couching, the uncovered side of the sheet was covered with a wet blotter of the same size placed on that. This pile of sheets was trimmed to 6 x 8 inches. The test sheets were dried between the mimeograph sheets and blotters in the drying oven (M 17428 F). The drying time and temperature were 4 hours and 65 deg. C. Calculation of solid fraction as the ratio of ream weight to caliper points multiplied by 0.0427.

(6) *Data for the Marathon Beater:*

Roll 8 inches diameter, contains 24 knives 3/8 inch thick and spaced 1 inch apart.

Bedplate machined from steel 8 inches long, 1 inch wide and ½ inch thick, having three knives 3/32 inch thick and 5/16 inch deep, spaced 3/32 inch apart. The total area in contact between the roll and bedplate is approximately 2 (knives of the roll) x 3/8 x 6 inches equals 4.5 square inches.

Weight Applied. For beating sulphite a weight of 13.4 pounds is applied at 16 inches from the fulcrum. Since the other arm of the lever is 9 inches long the total pressure between roll and bedplate is—

$$\frac{16 \times 13.4}{9} = 23.8 \text{ pounds or } \frac{23.8}{4.5} = 5.3 \text{ pounds per square inch}$$

For beating kraft a weight of 19.6 pounds is applied at 16. inches from the fulcrum. The total pressure between bed plate and roll is—

$$\frac{16 \times 19.6}{9} = 35.0 \text{ pounds or } \frac{35.0}{4.5} = 7.8 \text{ pounds per square inch}$$

These pressures will be somewhat decreased when the beater is filled with pulp, due to the increased area of contact.

(7) *Dirt count at the Institute of Paper Chemistry:* A one square foot sample of dry pulp is examined by reflected light. The number and size of dirt specks are counted on both sides of the sheet using J. d'A Clark's dirt estimation chart. The results are recorded as the number of sq. mm. of dirt per 2 square feet of pulp area.

(8) *Details of Unbeaten Strength Test in Restigouche:* 110 grams of pulp placed into a pail with approximately 8 litres of water and disintegrated by means of Lightnin Mixer for 30 minutes. The consistency of the pail is determined by measuring 250 cc. filtering on a 13 cm. filter paper in a Buchner funnel, pressing the pad to remove water and drying on a hot plate. From the dry weight of pad the exact consistence is calculated and from this is determined the amount of stock needed to give an air-dry wt. of 4.5 grams to a sheet, this weight being equivalent to ream weight 25x40x500—80 pounds.

The required amount of stock is measured into the Date Sheet Machine and the required amount of water added to give a drainage time of 15 seconds. Before draining the fibre suspension is thoroughly mixed using a special agitator i.e., a ½ inch brass plate 7½ x 7½ inches bored as completely as possible with ½ inch holes. This agitator is moved slowly up and down three times, the agitator removed, the valve opened and the water drained (15 secs.). The sheet is covered with a wet felt (this felt is used felt from the 3rd felt on a Bond machine) lifted with the aid of a wooden rocker or couch and placed with the felt on a galvanized iron plate, felt side next the plate and down, three more sheets are made in the same manner laid one on top the other, felt side down, the fourth and last sheet is covered on top with a felt and a galvanized iron plate.

The stack of sheets are pressed for 30 seconds at a pressure of 40 pounds per square inch, the felts removed and the sheets placed between dry blotters, 4 blotters on either side of the sheet pressed for 5 minutes at 100 pounds. Third pressing, 2 dry blotters on either side, each sheet pressed 2 minutes at 200 pounds.

The sheets are placed in an oven at 180 deg. F. and are dry in ten minutes. The dried sheets are placed in humidity room at 65 per cent r.h. for an hour. The air-dry sheets are weighed. A strip 2½ inches is cut from each sheet for Tear test and the remainder of sheet used for Mullen test.

In the Mullen tester five bursts are made of each sheet and an average is taken of the total bursts.

The four 2½ inch strips are placed together in the Elmdarf and four Tears made.

$$\frac{\text{Average Mullen} \times 80}{\text{Basis Wt.}} = \text{Mullen}$$

$$\frac{\text{Total of 4 Tears} \times 80}{\text{Basis Wt.}} = \text{Tear}$$

$$\frac{\text{Tear plus Mullen}}{3.5} = \text{Value}$$

$$\frac{\text{Average fold} \times 80}{\text{Basis Wt.}} = \text{Fold}$$

$$\frac{\text{Total caliper of 4 sheets} \times 100}{\text{Basis Wt.}} = \text{Bulk}$$

(9) Details of Sheet Making in Soundview:

After the sample has been taken from the beater pour it into one of the large aluminum cups which is about two-thirds full of water. Mix well by pouring from one cup into another and finally empty it into the sheet mould which at this time should contain so much water that after the pulp mixture has been poured into it the stock level is one inch below the top of the mould.

Now stir the mixture carefully by moving the perforated stirrer slowly up and down four times. Then remove the stirrer and instantly open the drain valve. The sheet is allowed to drain under suction for one half minute after the water has disappeared.

Put one new blotter (felt side down) on top of the test sheet and cover it with a used blotter free from defects. The couch plate is laid centrally on the blotters and the couch roll is placed gently in the center of the plate. The roll is moved backwards to within ¼ inch from the edge of the couch plate, then forward to within ¼ inch from the front edge, then back and forth four times, and finally to the middle when it is lifted off. No other pressure than the roll's own weight is to be applied for couching. The couch blotter with test sheet sticking to it is removed from the screen in a manner similar to opening the cover of a book.

The couch blotter and sheet are immediately laid, test sheet up, on one dry blotter (press filler). A mirror-polished stainless steel plate is placed on the sheet (polished side towards sheet) followed by another press filler ready to receive the next sheet. The pile in the press will now be made up as follows: Press filler, couch blotter, sheet, stainless steel plate, press filler a.s.o., always finishing off with one press filler on top in order to protect the stainless steel plate.

The first pressing is now done by pressing down the cover plate and then raising the pressure gradually to 50 pounds per square inch as indicated by the gauge and leave it there for two minutes (time measured by sandglass). When this time has elapsed the pressure is released and the plates with sheet attached removed from the pile.

The second pressing is done as follows: Place the plate, with sheet attached, that was on top, on one dry blotter (press filler) a.s.o. as in the first pressing, so that the order of the sheets in the pile is reversed. The press cover is now tightened down and the pressure raised rapidly to 50 pounds per square inch as indicated by the gauge and maintained there for *two minutes* as measured by the sandglass.

Only new blotters are to be used for couch blotters, old blotters may be used for press fillers provided they are free from wrinkles. The felt side of the blotters should always be against the sheet.

(10) Control of equal beating at Weyerhaeuser Laboratories:

The beater is filled with 22 liters of water. Then about 700 grams of bleached pulp is added until the speed of travel is 12 seconds per revolution before the bed plate is engaged. This is determined by dropping a dry ball of stock on to the furnish at a point which is exactly half-way around from the apron and with a stop watch checking its rate of travel. The consistency is adjusted until the rate of circulation for the half revolution is exactly 6 seconds.

(11) Description of Freeness Tester used in Marathon Mills:

Old model "Williams Standard Freeness Testing Outfit" as per cut in ad appearing in the Paper Mill, April 12, 1924.

The tester consists of cylindrical reservoir 4 inches in diameter with a capacity of 1000-cc. and having a screen bottom with circular perforations about 1/32 inch in diameter. Below this reservoir is an inverted conical-shaped receiver receding downward to a main opening ⅛ inch in diameter. About 2 inches above the main opening is a side vent leading to a measuring cylinder and protected by a water shed. The measuring cylinder is graduated in cubic centimeters having a volume of 200 cc.

(12) Explanation of Brown Company's Tests:

The Mullen figure is not the straight Perkins unit, but compares more favorably with the units in the old Ashcroft tester, which they believe are about 10 per cent higher than the standard Perkins Mullen unit.

The tear is expressed in a percentage basis after dividing by the basis weight.

In reference to conversion figures on slowness test, they say that on their slowness tester values from 1 up to 100 compare with the same freeness range of 650 down to 150 on the Schopper scale.

Forging the Impossible

The Kropp Forge Company, 5301 West Roosevelt Road, Chicago, has just issued an interesting bulletin entitled "Forging the Impossible." The announcement in part says:

"Forging the impossible has become so commonplace with us during the last thirty-three years that we frequently have overlooked the unusualness of some of the forgings we produce. It is a fact, though, that whenever it can't be forged, they bring it to us and we make it! And in so doing, we have become known for our ability in forging the impossible! Regardless of your forging requirements —drop or steam hammer forgings—one or ten thousand—rough or finished—as forged or heat treated—we can produce them to your most exacting specifications. Because of our unexcelled facilities and vast raw material stocks our deliveries, too, will receive your whole-hearted approval! Let us quote on your every forging requirement. Remember, Kropp makes 'forgings to your specification!'"

A. S. M. E. Printing Industries Division

The Printing Industries Division of the American Society of Mechanical Engineers has announced the following elections:

George D. Bearce, consulting engineer in the paper and printing industries, 501 Fifth Avenue, New York, and formerly manager of the Dalhousie Mill of the International Paper Company, was selected as Chairman of the Program Committee of the Division.

William R. Maull, Vice President of Dill & Collins, Inc., Philadelphia, was reappointed chairman of the Pulp and Paper Committee.

R. G. Macdonald, secretary-treasurer of the Technical Association of the Pulp and Paper Industry, was elected a member of the Executive Committee for three years.

Edward Epstein, well known photo-engraver and E. P. Hulse, consultant, both of New York City, were elected respectively Chairman and Secretary of the Division.

POWER SHOW OFFERS NEW AND IMPROVED DEVICES

(Continued from page 17)

demonstrate this at the Grand Central Palace an ordinary victrola is started, and the musical "output" of the record is transmitted through an amplifier and thence to a Neon Crater lamp, being transformed from sound into light. The lamp flashes this to a parabaloid mirror 46 feet distant, and this mirror focuses these light vibrations on a photo-electric cell, a few inches distant, and they, in turn, are transformed into sound again. A person or object intercepting the beam of light at any point stops the music. When the new Union Pacific streamlined train recently approached Schenectady, the engineer, with a similar apparatus hook-up, used the engine's headlights as a beam to announce his arrival at Schenectady in his own voice. This was done a couple of minutes before pulling into the station, along a straight stretch of railroad track.

International Nickel Co.

One of the most interesting exhibits of the Show is provided by the International Nickel Company. Courteous representatives of the company ably demonstrate the qualities and advantages of Monel Metal, Nickel Brasses, Nickel Bronzes, Nickel Cast Irons, Pure Nickel, Ni-Hard, Ni-Resist and Nickel Alloy Steels, all products of the International Nickel Company.

Link-Belt Co.

Applications of conveying and power transmitting machinery for solving the modern problems of industry are featured at the booth of the Link-Belt Company, of Indianapolis, Ind. Among the products of this company displayed are Silent Chain Drives, Roller Chain Drives, P. I. V. Gear, Variable Roller Drive, Herringbone Speed Reducers and Motorized Speed Reducers.

Morse Chain Co.

Kelpo Freewheeling Clutches in operation are featured at the exhibit of the Morse Chain Company, of Ithaca, N. Y. This clutch is suitable for high speeds, perfectly balanced and not affected by centrifugal force. Silent Chain Drives, Flexible Couplings, Roller Chain Drives, Morflex Couplings and Pullmore Clutches for positive and efficient power transmission, are also shown.

National Tube Co.

The National Tube Company, of Pittsburgh, Pa., is displaying National Duroline Pipe, a highly improved cement lined pipe. The thermal characteristics of Duroline make this pipe particularly suitable for use in industrial hot-water lines. The lining is not affected by rapid temperature changes or by long exposure to temperatures up to 210 deg. F., while its low thermal conductivity is of decided value in providing heat insulation in these services at no additional expense.

The Norton Co.

Refractory materials and their uses are demonstrated at the booth of the Norton Company, of Worcester, Mass. Norton bonded refractory products are divided into two classes: Light Refractories, including laboratory refractory ware and Heavy Refractories, consisting of bricks, plates, fabricated muffles, burner blocks, and miscellaneous shapes. Norton products includes Abrasives, Grinding and Lapping Machinery, Floors and Pulpstones.

J. E. Rhoads & Sons

Tannate Belting and Accessories are exhibited at the booth of J. E. Rhoads & Sons, of Wilmington, Del. Tannate Belts are made from the famous Rhoads Tannate tanned leather, which has a combination of desirable belt qualities that is unique: resistance to heat and mineral oils, longer life on hard drives, with a splendid power transmitting capacity.

S K F Industries, Inc.

Heavy duty Ball and Roller Bearings, Pillow Blocks, Ball and Roller Bearings, and Ball Bearing Hangers are shown at the booth of the SKF Industries, Inc. SKF gives a three-fold service—complete units for lineshafting, new machine appliances and the rapidly growing field of replacement. Newer methods, faster speeds and the call for greater production have shown old-type bearings unable to meet the demands of a new day. Obsolescence and costly failures point the way to anti-friction bearings. SKF Units—bearings and housings—are the logical answer in modernizing machinery. They can be easily applied and instantly bring the benefits of reduced friction, easier running and lower maintenance, fully meeting the newer tempo of speed with dependability.

Standard Oil Co. of New York

Socony-Vacuum Fuel Oils are featured in the large and attractive booth of the Standard Oil Company of New York. These fuel oils meet every demand for heat and power and contain all of the essentials necessary for the efficient operation of paper mill euipment. Mobiloil Arctic, Gargoyle Mobiloil, Mobil Gas and Greases and other Mobil Products are ably demonstrated.

Taylor Instrument Co.

Modern Recording Instruments, Temperature, Pressure and Flow Instruments are displayed at the exhibit of the Taylor Instrument Companies. In these Recorders are the most modern refinements known today—improvements which assure longer life and a higher degree of accuracy in service and in chart records for past, present and future reference. Taylor Recorders can be adapted for any power plant application between 100° F. and 1000° F. This is particularly true of the mercury actuated type with the remarkable accuratus tubing whose application and use every superintendent should know about.

The Walworth Co.

Valves, Fittings and Tools are shown in the booth of the Walworth Company, of 60 East 42nd Street, New York. Walworth Lubricated Plug Valves are considered ideal valves for industrial applications and combine a positive tight shut-off with ease of operation and freedom from attack by the fluids being handled. These valves are available for any of the pressure conditions usually encountered in industrial valve installations.

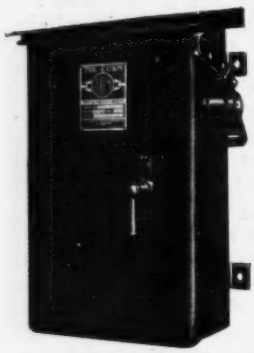
National Paper Mill for Philippines

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 28, 1934—A bill providing for the establishment of a national paper mill has been introduced in the Philippine Legislature, according to Trade Commissioner C. Grant Isaacs, Manila. The company, which will be subsidized by the government of the Philippines, will be capitalized at 250,000 pesos. The bill proposes to appropriate the sum necessary to acquire as many shares as the Government cares to purchase.

EC&M Weatherproof and Dust-Tight Type A Safety Switches

A new line of weatherproof, dust-tight Type A Safety Switches in standard sizes from 30 amperes to 600 amperes capacity, is now being supplied by The Electric Controller & Mfg. Company, 2708 E. 79th street, Cleveland, Ohio.



These switches use the same switch mechanism that is furnished with the standard EC&M Safety Switch which is of type A construction and should not be confused with the type C Safety Switches using lighter construction and which do not have safety interlocks.

These EC&M Weatherproof Safety Switches are equipped with fully interlocked door, making it impossible to operate the switch with the door open, or to open the door with the switch closed. They are enclosed in a 10 gauge steel cabinet which has been rustproofed by Bonderizing before the enamel is applied. A heavy sponge rubber gasket makes a tight seal between the door and cabinet.

Outstanding features of these Safety Switches are compactness—narrow width—light weight (due to steel, most weatherproof safety switches are enclosed in cast iron enclosures)—semi-floating, double break V-blades, V-stationary contacts backed up with steel springs which guarantee full contact under heavy pressure.

Opacity Standards for Paper Testing

The development of glass standards for the calibration of instruments used to test the opacity of paper by the contrast ratio method, as specified in the standard method of the Technical Association of the Pulp and Paper Industry, is described by Deane B. Judd of the Colorimetry Section of the National Bureau of Standards, in the September issue of the bureau Journal of Research.

According to this method the reflectance of the material backed by a perfectly absorbing surface divided by its reflectance when backed by a highly reflecting material such as magnesium oxide is taken as an index of opacity. Magnesium oxide, itself, is, however, commonly not used as the white backing because of its fragility; nor is the white backing placed in actual contact with the sample. Because of these and other sources of error, opacimeters frequently give erroneous results. Standards of opacity made of permanent material serve to check and to calibrate such instruments. Such standards made of opal glass are described, the theory of their application is given, and results of tests by their use reported. It is found that TAPPI opacity corresponds to a reflectance of white backing in contact with the sample of about 0.89.

Separate prints of the article, Research Paper 709, can be purchased from the Superintendent of Documents, Washington, D. C. (5 cents, each, cash.)

Paul S. Hoag Honored

Paul S. Hoag, Cleveland branch manager of the Mid-States Gummed Paper Company, has been appointed by Governor Ruby Laffoon of Kentucky aide-de-camp, with rank of Admiral.

Mr. Hoag was a lieutenant in the Navy during the World War and is very prominent in naval affairs. He has a wide acquaintance in the paper trade and has many friends who will be glad to hear of his appointment.

New Boiler Plant Bulletin

C. O. Bartlett & Snow Company, designers and builders of material handling and processing equipment, 6200 Harvard avenue, Cleveland, Ohio, have just issued a new boiler plant bulletin. The first few pages are devoted to a brief description covering the development of Bartlett-Snow Centralized Coal and Ash Handling System. The advantages it offers are explained briefly and a table is provided to assist engineers in determining the sizes and capacities of equipment required for various sizes of plants based on the rated horsepower of the plant. Typical plant layouts are suggested and diagrammed. Full and complete details are provided as to track hoppers, weigh-type skip bucket loading gates, skip hoist buckets, skip hoist runways, head frames, etc. Two pages are devoted to the discussion of hoist engines and hourly capacities of skip buckets for various lengths of hauls. Operation of the electrical control is described and the equipment illustrated. The advantages offered by cylindrical and suspension type coal bunkers are described fully, and a table provided in which are shown popular sizes of bunkers that can be furnished quickly from shop drawings already prepared. Discussion of weigh larries is complete, including both hand propelled and motor driven types.

The ash hoppers themselves and the accessory equipment including quenchers, soot chutes, ash gates, ash cars, track and turntables are described fully and illustrated, as are also ash skip hoists, ash bunkers and facilities for ground storage of coal.

Every attempt has been made to provide the industry with an unusual and informative hand book. The book has 40 pages, 102 illustrations, 11 tables and 44 diagrams, many of which have been drawn to scale and the scale indicated.

Scott Paper Co. Declares Extra

Directors of the Scott Paper Company, Chester, Pa. have declared an extra dividend of 25 cents and a quarterly dividend of 42½ cents a share on the common stock, both payable December 31 to stock of record December 17. Three months ago the directors declared a 42½-cent dividend on the common. Prior to that the stock was on 37½-cent quarterly basis.

Fidelity Raw Edge Belting

The Cincinnati Rubber Manufacturing Company, of Cincinnati, Ohio, has just issued a new envelope enclosure folder describing and illustrating Fidelity Raw Edge Belting. In this circular there is listed six distinct power transmission advantages which are found in this belt. Copies may be obtained upon application.

Strathmore Gives Turkeys to Employees

[FROM OUR REGULAR CORRESPONDENT]

WORONOCO, Mass., December 4, 1934—The Strathmore Paper Company, followed its annual custom this year, giving turkeys to its employees, the size of the turkey depending upon the size of the family. This custom started 30 years ago and has been continued ever since.

Fibre Products Laboratories

[FROM OUR REGULAR CORRESPONDENT]

DANVERS, Mass., December 3, 1934—The Fibre Products Laboratories has taken title from Maurice James Rosenbloom of Dorchester, Mass., in about 4315 feet of land and buildings on Riverside avenue.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 1, 1934

CIGARETTE PAPER

H. H. Strauss, Indep. Hall, Bordeaux, 221 cs.; Champagne Paper Corp., Indep. Hall, St. Nazaire, 627 cs.; De Manduit Paper Corp., Manhattan, Havre, 201 cs.; American Tobacco Co., Lafayette, Havre, 350 cs.; Champagne Paper Corp., Lafayette, Havre, 380 cs.; Liggett & Myers Tobacco Co., Waukegan, Havre, 334 cs.

WALL PAPER

F. J. Emmerich, Olympic, Southampton, 2 bls.; F. J. Emmerich, Hamburg, Hamburg, 6 bls.; ———, Gen. von Steuben, Bremen, 1 cs.; ———, Manhattan, Hamburg, 4 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Trader, London, 1 cs., 2 bls.

NEWSPRINT

American Jewish Publishing Co., Nailsea Court, Three Rivers, 1297 rolls; American Newspapers, Inc., Markland, Liverpool, N. S., 971 rolls; N. Y. Tribune, Markland, Liverpool, N. S., 1563 rolls; World Telegram, Markland, Liverpool, N. S., 591 rolls; Bridgeport Herald, Markland, Liverpool, N. S., 35 rolls; Brooklyn Daily Eagle, Markland, Liverpool, N. S., 1287 rolls; Gilman Paper Co., Markland, Liverpool, N. S., 313 rolls; Perkins Goodwin & Co., Gen. von Steuben, Hamburg, 75 rolls; Walker Goulard Plehn Co., Gen. von Steuben, Bremen, 57 bls.; Jay Madden Corp., Gen. von Steuben, Bremen, 138 rolls; International Paper Co., Cornerbrook, Dalhousie, 8434 rolls; Jay Madden Corp., Manhattan, Hamburg, 138 rolls; Perkins Goodwin & Co., Manhattan, Hamburg 285 rolls; Jay Madden Corp., Scanyork, Wiborg, 94 rolls; Jay Madden Corp., Scanyork, Kotka, 1066 rolls; Lunham & Reeve, Inc., Scanyork, Kotka, 298 rolls.

PRINTING PAPER

International F'd'g Co., Pennland, Antwerp, 15 cs.; Jay Madden Corp., Pr. Harding, Hamburg 103 rolls, 39 bls.; E. Dietzgen & Co., Gen. von Steuben, Hamburg, 49 cs.

WRAPPING PAPER

F. C. Strype, J. Jadot, Antwerp, 8 cs.; ———, Bilderdyk, Rotterdam, 57 bls.; Steiner Paper Corp., Hamburg, Hamburg, 5 cs.

PACKING PAPER

Scharf Bros., Black Falcon, Rotterdam, 16 pkgs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., American Trader, London, 1 cs.; Favor Ruhl & Co., American Trader, London, 3 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., American Trader, London, 8 cs.; A. Giese & Son, Bilderdyk, Rotterdam, 22 bls.

FILTER PULP

A. Giese & Son, Bilderdyk, Rotterdam, 2 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Pennland, Antwerp, 41 cs.; Chas. Happel, Pr. Harding, Hamburg, 6 cs.; Chas. Happel, Manhattan, Hamburg, 3 cs.; Globe Shipping Co., Gen. von Steuben, Bremen, 10 crates; Globe Shipping Co., Europa, Bremen, 36 crates.

BASIC PAPER

P. Puttman, Pennland, Antwerp, 19 cs.; Globe Shipping Co., Gen. von Steuben, Bremen, 24 cs.; Irving Trust Co., Hamburg, Hamburg, 25 cs.

METAL COATED PAPER

K. Pauli & Co., Gen. von Steuben, Hamburg, 40 cs.

TRANSFER PAPER

Rohner Gehrig & Co., Europa, Bremen, 6 cs.; Phoenix Shipping Co., Hamburg, Hamburg, 8 cs.

PHOTO PAPER

American Express Co., Hamburg, Hamburg, 3 cs.

COATED PAPER

Chas. Happel, Hamburg, Hamburg, 8 cs.

DECALCOMANIAS

Sellers Transportation Co., Gen. von Steuben, Hamburg, 11 cs.; Sellers Transportation Co., Europa, Bremen, 24 cs.; ———, Europa, Bremen, 7 cs.

TISSUE PAPER

Jay Madden Corp., Gen. von Steuben, Hamburg, 13 bls.; W. J. Byrnes & Co., Olympic, Southampton, 1 cs.; Atlantic F'd'g Co., Hamburg, Hamburg, 7 cs.

COLORED PAPER

Tamm & Co., Pennland, Antwerp, 1 cs.; International F'd'g Co., Gen. von Steuben, Hamburg, 4 cs.; D. C. Andrews & Co., Gen. von Steuben, Bremen, 2 cs.

STENCIL PAPER

Rohner Gehrig & Co., American Trader, London, 1 cs.; American Express Co., American Trader, London, 1 cs.; American Express Co., Olympic, Southampton, 1 cs.

WRITING PAPER

G. W. Sheldon & Co., Olympic, Southampton, 2 cs.; D. C. Andrews & Co., Manhattan, Havre, 2 cs.

ENVELOPES

R. H. Macy & Co., Gen. von Steuben, Hamburg, 4 cs.; L. Bamberger & Co., Gen. von Steuben, Hamburg, 3 cs.; B. Altman & Co., Hamburg, Hamburg, 3 cs.

SILK PAPER

P. J. Schweitzer, Exeter, Marseilles, 6 cs.

CARD BOARD

Corn Exchange Bank Trust Co., Pr. Harding, Havre, 7 cs.

PASTE BOARD

Flexideal, Inc., Manhattan, Hamburg, 45 bls.

MISCELLANEOUS PAPER

Keuffel & Esser Co., Pr. Harding, Hamburg, 100 rolls, 39 cs.; Japan Paper Co., Bordeaux Maru, Kobe, 7 cs.; Standard Products Corp., Bordeaux Maru, Kobe, 8 cs.; Steffens Jones Co., Kiyosumi Maru, Kobe, 2 cs.; Corn Exchange Bank Trust Co., Kwanto Maru, Osaka, 13 cs.; National City Bank, Kwanto Maru, Yokohama, 5 cs.

RAGS, BAGGINGS, ETC.

T. D. Downing & Co., Transylvania, Glasgow, 62 bls. bagging; E. J. Keller Co. Inc., Indep. Hall, ———, 159 bls. rags; J. J. Ryan & Sons, Bilderdyk, Rotterdam, 95 bls. cotton waste; Amtorg Trading Corp., Bela Khun, Leningrad, 2097 bls. rags; E. J. Keller Co. Inc., Waukegan, ———, 59 bls. rags; New England Waste Co., Getsuyo Maru, Shanghai, 100 bls. cotton waste; Mitsui & Co. Ltd., Getsuyo Maru, Shanghai, 100 bls. cotton waste; Corn Exchange Bank Trust Co., Getsuyo Maru, Kobe, 80 bls. rags; ———, Hamburg, Hamburg, 430 bls. cotton waste; ———, Kwanto Maru, Osaka, 250 bls. cotton waste; Chase National Bank, Kwanto Maru, Kobe, 50 bls. rags; E. J. Keller Co. Inc., Exeter, ———, 117 bls. paper stock; E. J. Keller Co. Inc., American Trader, ———, 144 bls. paper stock.

BONE GLUE

———, Gen. von Steuben, Hamburg, 100 bags.

OLD ROPE

Continental Bank Trust Co., American Trader, London, 134 coils.

CASEIN

———, Canadian Britisher, Wellington, 80 bags.

WOOD PULP

Lagerloef Trading Co., Argosy, Kemi, 490 bls. sulphate, 81 tons; Lagerloef Trading Co., Argosy, Kemi, 4850 bls. sulphite, 814 tons; ———, Argosy, Hernosand, 300 bls. sulphate, 50 tons; Perkins Goodwin & Co., Argosy, Sundsvall, 450 bls. sulphate, 75 tons; Price & Pierce, Ltd., Argosy, Wallvik, 1950 bls. sulphite, 325 tons; Castle & Overton, Inc., Bilderdyk, Rotterdam, 540 bls. wood pulp; Castle & Overton, Inc., Gen. von Steuben, Hamburg, 525 bls. wood pulp, 105 tons; ———, Gen. von Steuben, Hamburg, 358 bls. wood pulp, 71 tons; M. Sone, Manhattan, Hamburg, 130 bls. wood pulp, 25 tons; Lagerloef Trading Co., Scanyork, Helsingfors, 1199 bls. wood pulp, 215 tons; M. Sone, Scanyork, Helsingfors, 900 bls. wood pulp, 152 tons; Lagerloef Trading Co., Scanyork, Wiborg, 2501 bls. sulphite, 458 tons; Lagerloef Trading Co., Scanyork, Kotka, 365 bls. sulphate, 73 tons; Perkins Goodwin & Co., Scanyork, Gdynia, 700 bls. wood pulp, 107 tons; Castle & Overton, Inc., Hamburg, Hamburg, 2100 bls. wood pulp, 432 tons; Bank of N. Y. Trust Co., Hamburg, Hamburg, 290 bls. wood pulp, 58 tons.

WOOD PULP BOARDS

Triangle Building Material Co., Pr. Harding, Hamburg, 250 bls.; ———, Gen. von Steuben, Hamburg, 200 bls., 20 tons; Lagerloef Trading Co., Manhattan, Hamburg, 18 bls., 4 tons; Lagerloef Trading Co., Scanyork, Wiborg, 238 bls., 20 tons; Lagerloef Trading Co., Scanyork, Kotka, 8 bls., 44 rolls.

BOSTON IMPORTS

WEEK ENDING DECEMBER 1, 1934

G. F. Malcolm Inc., Lancastria, Liverpool, 21 cs. tissue paper.

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 1, 1934

Castle & Overton, Inc., Indep. Hall, St. Nazaire, 546 bls. rags; Lagerloef Trading Co., Scanyork, Helsingfors, 446 bls. wood pulp, 80 tons; Lagerloef Trading Co., Scanyork, Wiborg, 2334 bls. sulphite, 428 tons; Lagerloef Trading Co., Scanyork, Wiborg, 28 bls. wood pulp boards, 5 tons; Castle & Overton, Inc., Scanyork, Wiborg, 1282 bls. wood pulp, 250 tons; Lagerloef Trading Co., Scanyork, Wiborg, 523 bls. sulphate, 104 tons; Lagerloef Trading Co., Scanyork, Kotka, 60 bls. sulphate; Lagerloef Trading Co., Scanyork, Kotka, 984 bls. sulphite; Lagerloef Trading Co., Scanyork, Kotka, 260 bls. ground pulp; Lagerloef Trading Co., Scanyork, Kotka, 790 rolls wood pulp boards, 88 tons; Lagerloef Trading Co., Scanyork, Kotka, 169 bls. wood pulp boards, 25 tons; H. Reeve Angel & Co. Inc., Scanyork, Kotka, 26 rolls newsprint; J. W. Hampton Jr. & Co., Scanyork, Kotka, 245 rolls newsprint; J. W. Hampton Jr. & Co., Scanyork, Kotka, 24 rolls printing paper; Philadelphia National Bank, Kwanto Maru, Shanghai, 391 bls. cotton waste; First National Bank of Boston, Kwanto Maru, Shanghai, 100 bls. cotton waste; E. J. Keller Co. Inc., Haimon, ———, 320 bls. paper stock; M. Sone, Braheholm, Gothenburg, 1755 bls. wood pulp; Bulkley Dunton & Co., Argosy, ———, 625 bls. wood pulp.

CAMDEN IMPORTS

WEEK ENDING DECEMBER 1, 1934

Bulkley Dunton & Co., Argosy, ———, 7200 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 1, 1934

Congoleum Nairn Co., Indep. Hall, Bordeaux, 517 bls. rags; Congoleum Nairn Co., Waukegan, Havre, 200 bls. rags; Philadelphia National Bank, Kwanto Maru, Osaka, 86 bls. rags.

NORFOLK IMPORTS

WEEK ENDING DECEMBER 1, 1934

———, Waukegan, Havre, 110 bls. bagging.

White Plains Paper Co. Incorporates

The White Plains Paper Company, of White Plains, N. Y., has incorporated to handle paper products, with capital stock placed at $20,000. The incorporators are Jos. G. Koteen, 127 West 7 street, Mount Vernon, N. Y.; Edith Burack, 165 Church street, White Plains, N. Y. and Ruth Lichtenstein, 16 South Kensico Avenue, White Plains, N. Y.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, December 5, 1934.

Trading in the local paper market was moderately active during the past week. Supplies are moving into consumption in fairly satisfactory volume. Sales forces of the leading paper organizations are generally optimistic over the future outlook. Prices are holding to previously quoted levels.

The newsprint paper market continues to improve. Following the example of the International Paper Company and other leading manufacturers the Great Northern Paper Company has notified its contract customers that its price for the first six months of 1935 will show an increase of $2.50 per ton.

Conditions in the fine paper market are fairly satisfactory. Demand for book, bond, cover and writing papers is fairly persistent. Prices are steady and unchanged. Tissues are moving in seasonal volume. The coarse paper market is displaying a strong undertone. The paper board market is slightly more active.

Mechanical Pulp

The ground wood pulp market continues rather easy, although no further price changes have been reported. Production of mechanical pulp, both in North America and abroad, is still practically keyed to consumption and the statistical position of the industry is considered fairly sound.

Chemical Pulp

Demand for various grades of domestic and imported chemical pulp is mainly routine. With the exception of imported kraft pulp, which is easier, prices remain steady and unchanged. Foreign kraft No. 1 is now quoted at from $1.65 to $1.75 and No. 2 at from $1.50 to $1.60 per 100 pounds, on dock, Atlantic ports.

Old Rope and Bagging

The old rope market is slightly firmer. Demand for both domestic and imported old manila rope is more active. Small mixed rope is moving in fairly good volume. The bagging market is quieter. Gunny bagging, however, is in a strong position, with offerings scarce. Scrap and roofing bagging are irregular.

Rags

Paper mill demand for domestic rags is light at present. New cotton rags are quiet, with the exception of No. 1 white shirt cuttings, which are in good export request. Offerings of roofing grades are limited, with the result that prices are firmer. The position of the imported rag market is practically unchanged.

Waste Paper

The paper stock market is marking time for the present, with demand from the board mills disappointing. Strictly folded news and No. 1 mixed paper are still quoted at the recently established minimum prices. No. 1 white envelope cuttings are in better request than of late and prices are firmer. Book stock continues easy.

Twine

Business in the local twine market is fairly brisk. The movement into consumption is seasonal. In most quarters the outlook for the future is considered promising. Despite keen competition for desirable orders, prices are generally steady and reports of concessions are infrequent.

Lake States TAPPI To Meet

The Lake States Section of TAPPI will meet in Appleton, December 11. The program will consist of a Symposium on Engine Sizing as follows: 1. Rosin Sizing, Practical and Theoretical, by A. C. Dreshfield, Paper Makers Chemical Corporation, Kalamazoo, Mich.; 2. The Delthirna Size System, by A. E. Montgomery, J. O. Ross Engineering Corporation, Chicago; 3. Wax Size, by Harold Sinclair, Bennett, Inc., Canton, Ohio; 4. The Bewoid Rosin Size System, by George S. Kennedy, Bulkley, Dunton Co., New York; 5. Silicate Sizing, How to Get the Best Results, by William Stericker, Philadelphia Quartz Company, Philadelphia; 6. Function of Starch in Paper Making, by Robert Mankirk, Penick & Ford Sales Company, Cedar Rapids, Iowa.

New Club House at Fort Edward

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., December 3, 1934—Extensive improvements have been completed to property here owned by the International Paper Company which from now on will be used as a clubhouse and recreational center for employes at the local mill. The building was formerly occupied by the manager of the plant but was damaged by fire several months ago. Provisions have also been made in the structure for a meeting place for the Adriance Mutual Benefit Association, composed of employes.

Great Northern Raises Newsprint Price

The Great Northern Paper Company has notified its contract customers that its price for the first six months of 1935 will show an increase of $2.50 a ton on newsprint. The company, which is a large domestic producer, did not set a price for the second six months, stating that the quotation for this period would "depend upon conditions prevailing in the newsprint and publishing industries." With this increase the company's price for customers in New York will be $42.50 a ton.

Appointed Hamilton Agents

HARRISBURG, Pa., November 30, 1934—Paper Distributors, of this city, have been appointed agents for Hamilton bond and Hamilton ledger, manufactured by W. C. Hamilton and Sons, of Miquon, Pa.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, December 5, 1934.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The position of the bleaching powder market is practically unchanged. Contract shipments are moving in good volume. Prices are well sustained. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is marking time. Domestic standard ground is quoted at 9½ cents and finely ground at 10½ cents per pound; while Argentine standard ground is offered at 13½ cents and finely ground at 14 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—The caustic soda market is exhibiting a strong undertone. Prices are holding to schedule. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—Steadiness prevails in the china clay market. The contract movement is well up to average. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling from $6.50 to $12 per ton, at works.

CHLORINE.—The chlorine market is displaying strength. Demand from the paper mills is fairly heavy. Shipments against contract are normal. Chlorine is still quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is firmer. Paper making gum rosin is quoted at $4.25 and FF wood rosin at $4.30 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.53 per 100 pounds, in tank cars, at works.

SALT CAKE.—Paper mill demand for salt cake is moderately active. Prices remain unchanged. Salt cake is quoted at from $12 to $14 and chrome salt cake at from $12 to $12.50 per ton, at works. Imported salt cake is selling at from $12 to $12.50 per ton, on dock.

SODA ASH.—The soda ash market is quiet, although contracts for the forthcoming year are being booked in good volume. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—Trading in the starch market is fairly active at present. The contract movement is normal. Prices are firmer. Special paper making starch is now quoted at $3.57 per 100 pounds, in bags; and at $3.84 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Demand for sulphate of alumina is mainly routine. Prices are steady and unchanged. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads the quotation is $21 per ton.

TALC.—Business in the talc market is rather listless. Prices are holding to previously quoted levels, in most instances. Domestic talc is selling at from $16 to $18 per ton, at eastern mines; while imported talc is offered at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Kraft—			
No. 1 Domestic	4.75	@	5.00
No. 2 Domestic	3.87½	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	40.00	@	45.00
Chip	37.50	@	40.00
Sgl. Mla. Ll. Chip	47.50	@	52.50
Jute Lined Chip	47.50	@	52.00
White Patent Coated	60.00	@	65.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	22.00	@	24.00
Dry	23.00	@	24.00

(F.o.b. Mill)

No. 1 Domestic and Canadian	20.00	@	26.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—

(On Dock, Atlantic Ports)

Kraft No. 1	1.65	@	1.75
Kraft No. 2	1.50	@	1.60

(F.o.b. Pulp Mill)

Kraft Domestic	1.60	@	2.25

(Delivered)

Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1 75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.10	@	1.25
No. 2	.80	@	.85
No. 3	.70	@	.75
No. 4	.65	@	.70
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	1.60	@	1.70
New Mixed Cuttings	1.75	@	1.85
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.40	@	1.60
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.90	@	1.00
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.20	@	1.30
Wool Tares, heavy	1.20	@	1.30
Bright Bagging	1.15	@	1.25
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1	2.15	@	2.25
Hard White No. 2	1.95	@	2.05
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.70	@	.80
Over issue Mag.	.70	@	.80
Solid Flat Book	.55	@	.60
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.20	@	1.30
Strictly Overissue	.65	@	.70
Strictly Folded	.42½	@	.50
No. 1 Mixed Paper	.32½	@	.40

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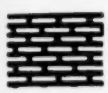

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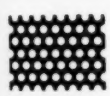

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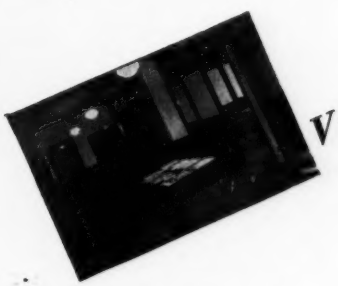

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Söderhamn, Sweden
CELLULOSEFABRIKS A.-G.
Bratislava, Czecho-Slovakei
SVANÖ AKTIEBOLAG
Svanö, Sweden

Twines
(F. o. b. Mill)

Coarse Polished—			
India	.11¼	@	.13¼
Beig. White Hemp	.12¼	@	.15¼
India Compress	.11¼	@	.12¼
Fine Polished—			
Fine India	.16	@	.20
Special	.16	@	.18
B. C.	.25½	@	.27½
Unpolished—			
Box	.10	@	.10½
Paper Makers	.07	@	.11½
Tube Rope	.08	@	.13½
Wall Paper	.09	@	.12½
Wrapping	.12	@	.17
Special	.12	@	—
Soft Fiber Rope	.10¼	@	.10¾

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.12	@	.50
Water Marked Sulphite Bond	.06¼	@	.11
Sulphite Bond	.05½	@	.11
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¼	@	.07¼
No. 2 S.&S.C. Book	.05¼	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¼
No. 1 Fibre	.04¼	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	41.00	@	—
Sheets, open	46.00	@	51.00
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.70	@	.80
Solid Books	.60	@	.70
Blanks	1.00	@	1.05
Kraffs	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.50	@	.55
Overissue News	.60	@	.70
Old Newspapers—			
No. 1	.50	@	.55
Mixed Papers—			
No. 1	.30	@	.35
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(Delivered Philadelphia)

Bonds	.05-9/10	@	.38
Ledgers	.06 9/10	@	.40
Writings—			
Fine No. 3	.05	@	.06
Superfine	.10	@	.12
Extra Fine	.15	@	.20
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Book, M. F.	.05¼	@	.06¼
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06½	@	.09
Coated Lithograph	.06¾	@	.08½
Label	.07	@	.11
No. 1 Jute Manila	6.25	@	—
Manila Sul., No. 1	5.25	@	—
Manila No. 2	3.00	@	—
No. 1 Kraft	5.00	@	—
Southern Kraft	4.75	@	—
Common Bogus	.03	@	.04½
News Print Rolls	46.00	@	55.00
Straw Board	40.00	@	45.00
News Board	50.00	@	—
Chip Board	45.00	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.65
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01½	@	.02
Blue Overall	.03½	@	.04
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.01½	@	.03
Fancy	.01½	@	.03
New Black Soft	.02	@	.04
New Light Seconds	.01½	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.04
No. 2 Mixed	.03	@	.04
Corduroy	.02	@	.03
New Canvas	.03½	@	.04½
New Black Mixed	.02½	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.50
Miscellaneous	1.75	@	2.25
M. G.	3.00	@	3.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.50
Repacked	1.50	@	2.00
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.85

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.25	@	1.30
No. 1 Mixed	—	@	.75
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.00	@	1.10
No. 1 Books, heavy	.55	@	.60
No. 1 New Manila	1.35	@	1.40
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.15	@	1.20
No. 1 Mixed Paper	.32½	@	—
Straw Board Chip	.30	@	—
Binders Board Chip	.30	@	—
Corrugated Board	.50	@	—
Overissue News	.60	@	—
Old Newspapers	.42½	@	—

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.07¼	@	.11
Rag Content	.12	@	.40
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08¾
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¼	@	.06¾
Manila, Sul. No. 2	.03¼	@	.04½
No. 1 Kraft	.04¼	@	.05
No. 2 Kraft	.03½	@	.04¼
(F. o. b. Boston)			
Southern Kraft	.03½	@	.04¼
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	44.50	@	—
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Chip Board (Creasing)	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	57.50	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.25
No. 1 Soft White	1.75	@	2.00
No. 2 Mixed	.80	@	.85
Solid Ledger Books	1.75	@	—
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.95	@	1.05
No. 1 Books, heavy	.85	@	.90
No. 1 Books, light	.65	@	.75
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.65	@	.70
White Blank News	1.10	@	1.15
No. 1 Kraft	1.00	@	1.05
Manila	.55	@	.60
No. 1 Mixed Papers	.32½	@	—
Print Manila	.45	@	.50
Overissue News	.50	@	.55
Old Newspapers	.42½	@	.45
Box Board Chips	..	@	.25
Corrugated Boxes	.32½	@	.40
Screening Wrappers	.50	@	.60

Bagging
(F. o. b. Boston)

Manila Rope—			
Foreign	1.75	@	1.90
Domestic	1.90	@	2.00
Transmission Rope	.90	@	1.00
Mixed Strings	.17½	@	.30
Jute Rope	1.35	@	1.40
Jute Carpet Threads	.65	@	.70
Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.15	@	1.20
Bleachery Burlap	4.00	@	4.50
Scrap Burlap	1.05	@	1.10
Scrap Sisal	1.00	@	1.10
Scrap Sisal for Shredding	1.10	@	1.25
Wool Tares, heavy	1.25	@	1.30
New Burlap Cuttings	1.45	@	1.50
Australian Wool Pouches	2.00	@	2.25
Heavy Baling Bagging	1.40	@	1.50
Paper Mill Bagging	.90	@	1.10
Bagging No. 2	.50	@	.55

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01¾	@	.02
New White No. 1	.05½	@	.06
New White No. 2	.03½	@	.04
Silesias No. 1	.04	@	—
New Black Silesias	.02½	@	.03
New Unbleached	.05½	@	.06
Blue Cheviot	—	@	4.65
Fancy	—	@	02½
Washable	.02¼	@	—
Cottons—According to grades—			
Blue Overalls	—	@	03¼
New Black soft	—	@	—
Khaki Cuttings	.03¼	@	.03½
O. D. Khaki	.03	@	.03¼
Corduroy	.01¼	@	.02
New Canvas	—	@	05
B.V.D. Cuttings	—	@	.06¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	04½	@	—
White No 1—			
Repacked	—	@	3.00
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Twos and Blues	1.25	@	1.50
Thirds and Blues			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Black Stockings	2.25	@	2.50
Roofing Stock			
No. 1	.70	@	.75
No. 2	.65	@	.70
No. 3	.55	@	.60

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.85	@	.95
New White Shirt Cuttings	5.50	@	6.00
Dutch Blues	2.00	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.55	@	1.60
Old Linsey Garments	1.25	@	1.35

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¼	@	—
No. 2 Colored	.09	@	.10
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	6.65	½	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.22½	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—
News, per ton—			
Rolls (contract)	39.50	@	—
Sheets	44.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	50.00	@	55.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.30
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.50
Printed Manilas	.70	@	.60
Kraft	1.25	@	1.50
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.60	@	—
No. 1 Mixed Paper	.50	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06	@	.06¼
Fancy Shirt Cuttings	.02¼	@	.02½

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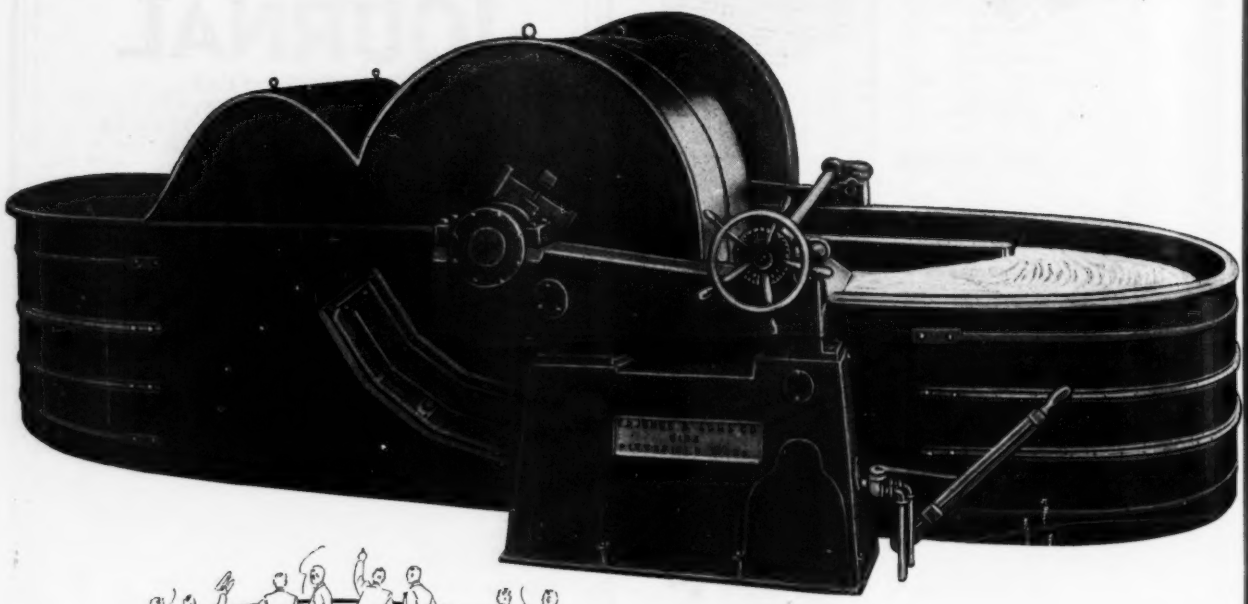

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